THE TEACHER'S ROLE IN FOSTERING SELF-REGULATED LEARNERS: A PROFESSIONAL DEVELOPMENT MODEL

by
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Abstract

Despite decades of educational research on the importance of fostering students to develop self-regulated learning (SRL) skills, teachers may continue to struggle with offering SRL opportunities in the curriculum and/or providing explicit self-regulatory strategy instruction for students. The purpose of this mixed methods study was to evaluate the impact of a professional development program designed to increase teacher knowledge of students' SRL and teacher adoption of instructional strategies that develop students' SRL. Eighteen teachers at a private, all-female high school in a Midwestern state participated in this study; nine teachers were matched into a control group and nine teachers were matched into an intervention group. Teachers in the intervention group participated in 11 collaborative professional development sessions, each ranging from 45 to 60 minutes, over the course of three months. The professional development program was designed to foster an awareness on the value of supporting students as self-regulated learners and to support teachers in implementing instruction based on the research-informed cycle of SRL. To examine the effects of the professional development program, quantitative and qualitative data were collected from pretest and posttest classroom observations, professional development reflection questions, and follow-up interviews. A MANCOVA was conducted to analyze the data collected during pretest and posttest classroom observations, which revealed no statistical significant differences between teachers in the control group and teachers in the intervention group's implementation of instruction to support students' forethought/planning, performance/monitoring, and self-reflection/evaluating phases of SRL. Due to the small sample size, the between-subject analysis for each subscale was also examined. Although these results should be reviewed

with caution, group assignment revealed a significant effect for the forethought/planning subscale. Additionally, participant interviews revealed that teachers in the intervention group were able to clearly describe how they would adapt their classroom instruction and construction of the learning environment to support students as self-regulated learners. Results from this study suggest that collaborative, ongoing professional development among teachers in varying content areas can bridge the gap between SRL theory and practice, ultimately supporting teachers in understanding how to foster students as self-regulated learners.

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Dedication

This dissertation is dedicated to my husband, Alex. Thank you for encouraging me to pursue this dream. I would not want to be on life's adventure with anyone else but you.

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EXECUTIVE SUMMARY

SRL, oftentimes coined as learning *how* to learn, has been a field of educational interest among researchers over the past few decades (Boekaerts, 1997; Zimmerman, 1990). Zimmerman (2002), a pioneer in SRL research, demarks three cyclical phases of SRL: forethought, performance, and self-reflection. Within each of these phases are key strategies and behaviors that teachers can promote via explicit strategy instruction and curriculum design to support students as self-regulated learners (Paris & Paris, 2001). Yet, Nilson (2014) argues,

> Just because we [teachers] may practice self-regulated learning doesn't mean our students do. Most of us were among the best students, especially in college, and the best students can become the worst teachers because we quickly knew how to master the material.

The gap between educational theory and practice persists among teachers' conceptualization and integration of instruction to support students as self-regulated learners (Boekaerts & Corno, 2005; Cooper, Horn, & Strahan, 2005; Eilam & Reiter, 2014). This study focused on understanding what factors, indicated in the literature and needs assessment findings, impact the presence of SRL opportunities in the secondary curriculum, as well as how an in-house professional development program could support teachers in fostering self-regulated learners at a private, Catholic, all-female high school.

Context of Study

Little Flower Academy (pseudonym) is a private, Catholic, all-female high school in a Midwestern state. Little Flower Academy is in the beginning phases of implementing a strategic academic plan focused on creating 21st century learning environments for all

students particularly with an emphasis on student-centered learning, exploratory learning opportunities, and college and career pathways. As a one-to-one tablet learning environment, Little Flower Academy's academic mission is to empower young women as critical thinkers and servant leaders. Little Flower Academy employs 28 full-time teachers and 11 part-time teachers with an average of 17 years of teaching experience. Little Flower Academy enrolls approximately 500 female students; student demographics are primarily homogenous – white, Catholic, from middle-class families. A large majority (96-97%) of graduates from Little Flower Academy pursue postsecondary education at a four-year university or college. In order to effectively prepare students for postsecondary education and 21st century workplaces, high school students must be offered opportunities to self-direct and self-regulate their learning (Partnership for 21st Century Learning, n.d.).

Factors Influencing the Promotion of SRL Opportunities in the Secondary Classroom

Although the self-regulatory process is unique to each learner, Boekaerts (1997) argues that "in most cases, teachers are still steering and guiding the learning process, a situation which does not invite students to use or develop their cognitive or motivational self-regulatory skills" (p. 162). Certain classroom conditions (e.g., closed-ended versus open-ended tasks) may also impact student ability to engage in strategic thought processes (Paris & Paris, 2001). Teacher beliefs (Dignath-van Ewijk & van der Werf, 2012), autonomy support and autonomy structure (Mouratidis, Vansteenkiste, Michou, and Lens, 2013; Sierens, Vansteenkiste, Goossens, Soenens, & Dochy, 2009), and self-

regulatory efficacy (Caprara et al., 2008) have been studied separately as conditions that support or predict SRL in the classroom environment.

Teacher beliefs about SRL may influence the availability of SRL opportunities in the curriculum (Dignath-van Ewijk & van der Werf, 2012). Furthermore, SRL opportunities must be supported by a classroom environment that provides students with independent and collaborative opportunities to actively engage in their learning (Sierens et al., 2009). Self-regulatory efficacy may result from increased practice with SRL opportunities in a classroom that is structured to support autonomy (Caprara et al., 2008). Overall, implementation of SRL opportunities cannot be done in isolation; rather, it must be effectively integrated, supported, and engrained in the classroom environment.

Needs Assessment Study: Investigating Factors Studied in the Literature as Supports for SRL

To better understand how teachers at Little Flower Academy support their students as self-regulated learners, a survey was administered to a sample of both students (n = 65) and teachers (n = 22) in the spring of 2015. The student survey consisted of adapted items from Cleary's (2006) Self-Regulation Strategy Inventory and Belmont, Skinner, Wellborn, and Connell's (1992) Student Report of Teacher Context. The purpose of the student survey was to investigate the relationship between students' self-regulatory efficacy and their perceptions of autonomy support and autonomy structure in the classroom. The teacher survey consisted of adapted items from Lombaerts, de Backer, Engels, van Braak, and Athanasou's (2009) SRL Teacher Belief Scale and Vrieling, Bastiaens, and Stijnen's (2013) SRL Opportunities Questionnaire.

The purpose of the teacher survey was to investigate how teachers' pedagogical beliefs about SRL influence their implementation of SRL opportunities in the classroom.

When viewing the teacher and student needs assessment data as an aggregate sample, a discrepancy emerged between teacher beliefs and student perceptions of teacher practices that support SRL. Some responses to items from the needs assessment data revealed that teachers have favorable pedagogical beliefs about supporting SRL in the classroom and believe that they are providing opportunities for students to self-regulate. Yet, students' survey responses suggested that teachers are only occasionally implementing practices that research suggests as support for students' SRL. Based on the quantitative findings from the needs assessment study, an intervention was proposed to increase teacher knowledge of SRL and to promote teacher implementation of instruction to support students as self-regulated learners.

Developing a Professional Development Program for Teachers to Cultivate their Students as Self-Regulated Learners

Professional development about SRL has been analyzed as an effective intervention among preservice teachers (Kramarski & Michalsky, 2009; Perry, Philips, & Hutchinson, 2006) and practicing teachers (Kramarski & Revach, 2009; Perels, Merget-Kullmann, Wende, Schmitz, & Buchbinder, 2009). Kramarski and Michalsky (2009) designed their professional development model under the ideology that teachers must be effective self-regulated learners in order to foster these regulatory processes in their students. In Perry et al.'s (2006) SRL training model, student teachers were matched with practicing mentor teachers. These student teachers participated in collaborative professional development sessions led by university faculty and implemented mini-units

focused on supporting students as self-regulated learners in their mentor teacher's classroom. Kramarski and Revach (2009) discovered that mathematics teachers who received support in SRL strategies, implemented more metacognitive questioning in the classroom. Perels et al.'s (2009) professional development model, which primarily guided this study's intervention design, yielded the following results among practicing kindergarten teachers: significant changes from pretest scores in the areas of knowledge about SRL and overall self-regulation. Based on the literature and needs assessment findings, the researcher developed a professional development program to support teachers at Little Flower Academy in understanding how to best support students as self-regulated learners.

Intervention Research Design and Implementation

Out of the 32 eligible teachers at Little Flower Academy, 18 teachers consented to participate in the research study. Nine teachers were matched into a control group and nine teachers were matched into an intervention group. Teachers in the intervention group participated in 11 professional development sessions, each ranging from 45 to 60 minutes, during the months of October – December 2016; teachers in the control group received no professional development related to SRL. The researcher functioned as the facilitator for all professional development sessions. The professional development curriculum focused on three main components: (1) promoting teachers' awareness of the value of students' SRL, (2) sharing the research-informed cycle of SRL with teachers, and (3) supporting teachers in developing and implementing instruction to promote SRL strategies among high school students. In order to support transfer of knowledge gained from the professional development sessions into classroom practice, teachers

implemented two PDSA cycles per Bryk, Gomez, Grunow, and LeMahieu's (2015) model.

Purpose of Study and Research Questions

The purpose of this mixed methods study was to evaluate the impact of a professional development program designed to increase teacher knowledge of students' SRL and teacher adoption of instruction strategies that developed students' SRL strategies, subsequently supporting high SRL in all students. The following research questions guided the data collection and analysis of the intervention:

RQ1: To what extent did professional development on SRL increase teacher presentation of forethought and planning strategies in the classroom?

RQ2: To what extent did professional development on SRL increase teacher presentation of performance and monitoring strategies in the classroom?

RQ3: To what extent did professional development on SRL increase teacher presentation of self-reflection and evaluation strategies in the classroom?

RQ4: To what extent did professional development on SRL increase the effectiveness of teachers' presentation of self-regulation teaching strategies?

Data Collection and Results

Quantitative and qualitative data were collected to investigate each research question. Spruce and Bol's (2015) SRL observation instrument was utilized to collect quantitative data based on two announced formal classroom observations, prior to and following professional development. Qualitative data were collected via reflection questions at the end of each professional development session and follow-up interviews with teachers in the control and intervention group.

A MANCOVA revealed no statistical significant differences among teachers in the intervention group's implementation of strategies to support students in the forethought/planning phase, performance/monitoring phase, and self-reflection/evaluating phase. Because of the small sample size, the univariate results were also examined, which revealed that professional development had a significant effect on teachers' implementation of forethought/planning phase. Based on the regression equation, a significant effect was also discovered between group assignment and teacher implementation of instruction to support SRL. During and following professional development, teachers in the intervention group were also able to clearly verbalize how and why certain strategies are important for fostering students as self-regulated learners.

Implications for Practice

This study's findings aligned with Perels et al. (2009) and Spruce and Bol's (2015) suggestions that teachers need explicit instruction on how to support their students as self-regulated learners in the classroom. The need for instructional support may also be more crucial among veteran teachers; most veteran teachers (80%) in this study, classified as teaching for more than 20 years, voiced that this way of thinking about learning was new to them. Of note, besides this study, teachers at Little Flower Academy did not receive any in-house professional development during the 2015-2016 or 2016-2017 school year. This lack of professional development is in alignment with Desimone, Smith, and Ueno's (2006) research findings that private school teachers tend to participate in professional development less often than public school teachers. Results from this study suggest that in-house, collaborative, ongoing professional development focused on increasing teachers' awareness, how-to knowledge, and practical applications

(Freeman, 1989; Rogers, 2003) best support teachers in changing their classroom practice to support self-regulated learners.

CHAPTER 1: INTRODUCTION TO THE PROBLEM OF PRACTICE

The following chapter begins with an overview on the necessity of 21st century learning practices in the classroom, specifically SRL. The purpose of this chapter is to provide a framework for understanding what factors contribute towards student development and use of SRL strategies. Based on the theoretical lenses, the following factors are explored in more detail: (a) teacher beliefs on SRL, (b) autonomy support and autonomy structure in the classroom, and (c) student self-regulatory efficacy. Finally, the chapter concludes with a rationale for the above stated factors as operationalized variables for the needs assessment study.

SRL as a 21st Century Learning Practice

In the current era of college and career readiness, secondary schools face increased pressure to create 21st century learning environments that promote self-directed learning in preparation for postsecondary learning and the workplace (Lemley, Schumacher, & Vesey, 2014). The Partnership for 21st Century Learning (n.d.) outlines key 21st century skills that students should possess including, but not limited to, learning and innovation skills (e.g., critical thinking and problem solving) and life and career skills (e.g., initiative and self-direction). To support student acquisition of these skills, 21st century learning environments must focus on providing students with increased opportunities to direct their own learning and to make choices based on their learning goals (Partnership for 21st Century Learning, n.d.). However, self-directed learning poses problems within learning environments. If students are to assume the role of being the creators of knowledge, how does their environment support that capability? Students cannot be assumed to assimilate into self-directed learning without proper exposure to

models prior to individual ownership. In addition, tools are needed to insure that students are employing necessary metacognitive principles to guide their goals and actions (Paris & Paris, 2001). Without recognition of their own cognitive capabilities, students will be unable to fully guide their own learning process (Flavell, 1979).

To support students' self-directed learning, teachers should be specific in their use of praise by commenting on students' skills and providing them with feedback for improvement (Reeve & Jang, 2006). This specificity in praise may also support student transfer of knowledge and skills to new, challenging tasks (Hardiman, 2012). Additionally, teachers should employ dialogic, inquiry-based questioning to support students during complex learning tasks (Polman, 2004). Compared to elementary and middle schools, teacher dialogic practices may be limited in high schools because of an increasing number of students that teachers interact with on a daily basis (Higham, Brindley, & Pol, 2014). Further, for dialogic practices to be effective, they should be practiced holistically (i.e., all teachers should ask students to voice their reasoning). Yet, in a high school setting, it is difficult to shift all teachers for all students from content area focuses to pedagogical approaches (Higham et al.). As Higham et al. point out, if these dialogic practices are not holistic in nature (e.g., students experience a teacher lecturing in one class and then a teacher implementing dialogic practices in another class) then it will have little effect on students' metacognitive development. Because teacher scaffolding for student autonomy is an extensive and deliberate process that should be individualized based on students' learning needs and curriculum goals and their present stage of SRL development (Belland, Kim, & Hannafin, 2013; Humphreys & Wyatt, 2014; Simons & Ertmer, 2005), this process may take ongoing teacher implementation,

modification, and reflection to find the best balance between teacher control and student autonomy. Therefore, the traditional, didactic model of schooling and instruction must shift to promote and support students' higher-order, complex thinking skills; stakeholders must acknowledge the complexity of this historical and organizational shift and the shift's advantages in reaching marginalized student populations (Deschenes, Cuban, & Tyack, 2001). Consequently, this shift towards self-directed learning involves multiple stakeholders within the learning partnership; specifically, the learning partnership between teachers and students.

When schools shift towards offering students more self-directed learning approaches (e.g., problem-based learning), students are granted more opportunities to develop SRL skills (Loyens, Magda, & Rikers, 2008). SRL refers to students' proactive engagement in learning; self-regulated learners adapt their strategy use and monitor their performance based on their learning goals (Zimmerman, 2002). Zimmerman (2002), a pioneer in the field, outlines three cyclical phases for students to develop and engage in SRL processes: (a) forethought; (b) performance; and (c) self-reflection. These phases are also associated with key strategies that enable students to guide their learning based on proximal and distal goals (Lombaerts et al., 2009). Yet, these regulatory processes must be supported and developed over time.

Zimmerman (2005) argues for four developmental levels of regulatory skills: observation, emulation, self-control, and self-regulation. Younger students ascertain behaviors and skills by first observing skilled adults model and verbalize learning processes. Next, students emulate the modeled pattern and processes with strategic feedback by experts. These two developmental levels focus on the social process of

learning whereas the last two levels focus on the individual process of learning within a social environment. Self-control requires deliberate individual practice of skills; this deliberate practice typically pertains to structured practice and reinforcement in the classroom environment. Self-regulation, the highest developmental level of regulatory skill, occurs when students can adapt their skills and behaviors based on tasks and environments. Even at the highest level of regulatory processing, students still consult support resources (e.g., teachers, peers) as needed.

Self-regulated learners engage in a cyclical and deliberate process of planning, decision making, and reflective strategy usage. Students who engage in SRL processes thrive in independently guided work (Butler, 2002) and are associated with high academic achievement in classroom settings (Zimmerman, 1990). For teachers to effectively support students in developing SRL skills, students must know how to regulate their own learning and be able to apply these skill sets successfully to a variety of task demands.

Problem of Practice

Despite extensive research on SRL over the past decades, difficulty with teachers' conceptualization and integration of SRL instruction and application persists among high school classrooms (Boekaerts & Corno, 2005; Cooper et al., 2005; Eilam & Reiter, 2014). SRL approaches are teachable for all ages of students (Zimmerman, 2002). Yet, to be effective, teachers over several years must promote SRL strategies in their curriculum, as well as provide opportunities for students to reinforce these learning behaviors (Dignath-van Ewijk & van der Werf, 2012). To reinforce students' use of SRL strategies, teachers should provide autonomy support and autonomy structure in the classroom.

Classroom autonomy support pertains to teacher encouragement and peer collaborative opportunities; whereas, classroom autonomy structure pertains to clear expectations and feedback (Sierens et al., 2009). Overall, the classroom context plays a vital role in supporting SRL and in allowing students the opportunity to apply these skill sets as preparation for 21st century learning and the workplace.

Theoretical Frameworks

Two theoretical perspectives guide this study. First, the social cognitive theory offers a focus for understanding the triadic relationship between learners, their behavior, and their environment in supporting or hindering SRL development (Bandura, 1986; Zimmerman, 1990). SRL is often termed as the process of learning how to learn. From a social cognitive perspective, learners continually engage in open feedback loops based upon self-observation and adjustment of strategy use (i.e., behavioral factors), responses to environmental conditions (e.g., learning environment), and self-monitoring of cognitive strategy use (i.e., personal factors) (Zimmerman, 2005). Social cognitive theorists also view personal perceptions of self-efficacy as an important intermediary in students' engagement in SRL processes (Bandura, 1986; Zimmerman, 1990). Bandura (1986) asserts that "it is the one and the same person who is doing the thinking and then later evaluating the adequacy of his or her knowledge, thinking skills, and action strategies" (p. 21). As evident in Bandura's (1986) discussion of forethought capability and self-reflective capability, important tenets for SRL processes, the social cognitive theory focuses on how the learner determines certain actions based on reflection and observation, as well as the role of the social context and how it impacts a learner's cognitive experience.

Second, the sociocultural perspective provides a framework for investigating how SRL can be supported in a community of learners. Similar to social cognitive theorists, sociocultural theorists explore the relationship between the learner and their environment, specifically how an environment influences a learner's intake of knowledge (Gee, 2008). A learner's environment correlates with a learner's opportunity to learn based on his or her zone of proximal development and disposition to the situation (Vygotsky, 1978). In the context of formal schooling, a sociocultural perspective evaluates classroom environments and its effect on student learning (Gee, 2008). In terms of SRL, the classroom environment may influence the perception and intake of these cognitive strategies and application principles (Beishuizen, 2008). Therefore, the teacher must model essential characteristics of SRL and engage students in active knowledge building. Sociocultural theorists view knowledge as a concept not only embodied by the learner, but also molded through environments and the learner's usage of tools ranging from language to other learners in the environment (Gee, 2008; Vygotsky, 1978). In essence, sociocultural models function on the tenet that students embody cognitive processes based on the environmental conditions, such as teacher scaffolding, peer support, and instructional complexity (Butler, 2002).

In summary, looking at these two perspectives, overall, the social cognitive and the sociocultural perspectives address the individualized process of self-regulation and acknowledge the role of the classroom environment in supporting SRL. Students must internalize self-regulatory processes based on their individual level of metacognitive strategy use and reflective abilities. This internalization must be supported by teacher scaffolding and instructional approaches, which may be influenced by teachers' beliefs

on learning. The sociocultural perspective also suggests that the classroom environment supports student autonomy, while providing enough structure for student use of tools.

Literature Review

The following literature review will first explore contextual factors outside of the classroom environment that influence students' SRL development. These contextual factors will provide insight into how familial environments and personal characteristics may hinder the development of SRL skills. Because the Problem of Practice aims to understand how the classroom environment can support or limit students' development of SRL skills, classroom and teacher factors will be explored in more detail. The following literature was obtained by searching databases, including Johns Hopkins University's Catalyst (library catalog), EbscoHost, and JSTOR, and search engines, such as Google Scholar. The following search terms (or variations of the search terms) were used: SRL instruction, teacher beliefs on SRL, student self-regulatory efficacy, perceived autonomy support and autonomy structure, goal orientations, disposition to learning environments, self-regulatory strategy use, self-assessment, parental influences, aged differences in SRL, and gender differences in SRL. Due to the recent and ongoing developments in the field of SRL, peer-reviewed, empirical sources published within the last 15 years were given preference. Because of the demographics in the context under study, additional preference was given to K-12 contexts.

Contextual Factors Influencing Students' SRL Development

Prior to exploring classroom factors that support students' SRL development (see Figure 1.1), the literature review will also discuss the following broader contextual factors that may hinder students' SRL development: parental influences and personal characteristics.

Parental Influences

As noted in the social cognitive framework, environmental conditions play an important role in students' SRL development. At an early age, SRL development requires children to observe skilled adults (e.g., parents) model behaviors and verbalize their learning processes (Zimmerman, 2005). As children begin to emulate these behaviors, parents need to provide specific, explicit feedback to foster students' SRL (Martinez-Pons, 2002; Zimmerman, 2005). Because students' familial environments function as the first social learning opportunities for students to develop SRL skills, it is important to understand how socioeconomic class and parental behaviors may impact students' SRL skills.

To explore how socioeconomic class influences students' SRL development, Vassallo (2012) conducted a case study of one working-class family. Based upon naturalistic observations and interviews, Vassallo noted that parents in the working-class family rarely worked with their children on homework assignments, an important opportunity for parents to model SRL skills for children. Consistent with working-class familial values (Lareau, 2003), these parents also viewed schooling as a separate entity from familial responsibilities. For example, because they were unaware of their daughter's reading level, they struggled with supporting their daughter's personal factors related to SRL (e.g., motivation while reading). In contrast to middle-class families that engaged in concerted cultivation (Lareau, 2003), continually monitoring their children's skill and knowledge development, working-class families engaged in natural growth, believing that academic development is distinct from familial responsibilities. Because Vassallo (2012) only examined one working-class family, additional research is needed

to examine how social class values and norms may impact students' development of SRL.

To understand how parental behaviors support students' SRL development and academic achievement, Martinez-Pons (2002) developed a questionnaire based upon Zimmerman's (2005) four SRL developmental levels. Martinez-Pons categorized parental support for each of these developmental levels as modeling, encouragement, facilitation, and rewarding. Four SRL behaviors, motivation, goal setting, strategy use, and self-evaluation, were aligned with each type of parental support (e.g., questionnaire items asked about the frequency of parents modeling goal setting or parents rewarding strategy use). Students (N = 100) in Grades 5-8 completed questionnaires about observed behaviors in their parents and about their own engagement in SRL processes. Data were also collected on students' standardized test performance. Results from a path analysis revealed that parental support of SRL precedes students' development of SRL skills which subsequently predicts students' academic success. In addition to parental support of SRL, Martinez-Pons also argues that teachers must model these SRL behaviors and provide scaffolding to support students' SRL development in the classroom. As identified in Vassallo's (2012) case study, the need for teachers to foster students as self-regulated learners may be even more important among students from families that do not have the time or resources to foster these behaviors in the home environment.

Personal Characteristics

Although SRL skills are teachable for all students (Zimmerman, 2002), personal characteristics, such as gender and age, may impact students' use and development of SRL strategies. Female students are typically associated with higher SRL strategy use

than male students (Bidjerano, 2005; Zimmerman & Martinez-Pons, 1990). In their interviews with students in Grades 5, 8, and 11, Zimmerman and Martinez-Pons (1990) determined that females surpassed males in the following SRL strategies: record keeping and monitoring, environmental structuring, and goal setting and planning. Similarly, Bidjerano (2005) discovered that undergraduate female students surpassed male students in the following behaviors associated with SRL: rehearsal (e.g., verbal practice of newfound knowledge), organization (e.g., outlining ideas), metacognition, time management skills, elaboration (e.g., paraphrasing ideas), and effort regulation (i.e., ability to respond to setbacks). Although these findings reveal that females employ more SRL strategies and engage in more SRL behaviors than males, it is also possible that these differences relate to gender orientations (i.e., students' stereotypical beliefs about gender and learning) (Bidjerano, 2005). In their study of students' self-regulatory efficacy, Pajares and Valiante (2002) noted that when gender orientation beliefs were controlled for, there were no significant differences in female versus male students' self-regulatory efficacy. Furthermore, even though females reported increased usage of SRL strategies in Zimmerman and Martinez-Pons' (1990) study, females were also classified as less self-efficacious than males in verbal tasks. The relationship between students' self-regulatory efficacy and SRL strategy use will be explored in a later section of this literature review.

Differences in SRL strategy use and development also emerge based on students' grade level. Leutwyler (2009) investigated metacognitive strategy usage (i.e., planning, monitoring, and evaluating) among high school students (N = 1,432) in Grades 10 and 12. Based on students' self-reports, most students in Grade 12 used monitoring strategies

(80.6% of respondents), followed by evaluating strategies (58.9% of respondents), and then planning strategies (51.2% of respondents). Although only a little more than half of students reported using evaluating and planning strategies, the authors did not observe any growth in students' metacognitive strategy use throughout the high school years (i.e., from Grades 10 to 12). In alignment with these findings, Karlen, Merki, and Ramseier (2014) also observed no growth in high school students' metacognitive strategy knowledge from the beginning of the school year to the end of the school year. In addition to high school students' lack of growth in SRL strategy use, Zimmerman and Martinez-Pons (1990) also noted that students' use of goal setting and planning strategies decline from grade school to high school. Students in high school, compared to students in grade school, primarily seek assistance from their teacher in regulating their learning, signaling a shift from parental influences to the role of the teacher and classroom environment in supporting students' SRL development (Zimmerman & Martinez-Pons, 1990).

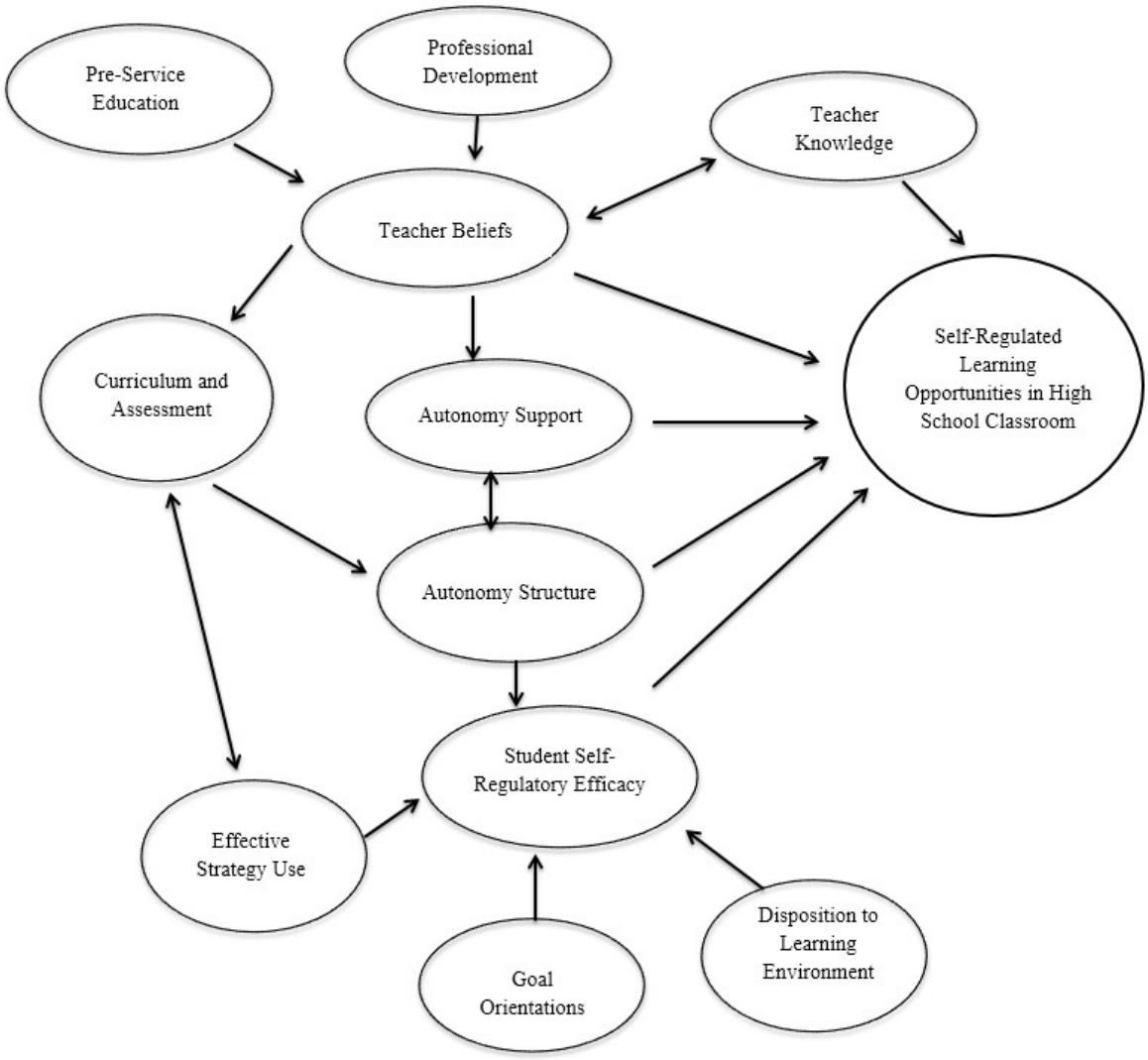
Role of the Classroom Environment in Students' SRL Development

Multiple school-level structures and factors directly and indirectly impact and support SRL in the classroom environment. These factors include, but not are limited to, school learning culture (Erickson, 1987); leadership support for self-directed learning (Douglass & Morris, 2014); effective professional development (Goldschmidt & Phelps, 2010); and peer teacher learning communities (Jackson & Bruegmann, 2009). A school's learning culture and leadership support for self-directed learning may reciprocally arise from teachers and students' implementation of SRL in the classroom. Furthermore, effective professional development and peer teacher learning communities may serve as

potential interventions for addressing a lack of SRL opportunities in the secondary curriculum. Therefore, the main focus for this literature review will be on the role of the classroom environment in providing and supporting SRL opportunities.

Figure 1.1

Conceptual Framework



Teacher beliefs, autonomy support and autonomy structure, and self-regulatory efficacy have been studied separately as conditions that support or predict SRL in the classroom environment. As Figure 1.1 depicts, these constructs will be studied as

interconnected based on the following research-informed rationale. Teacher beliefs on learning may influence the availability of SRL opportunities in the curriculum (Dignath-van Ewijk & van der Werf, 2012). Furthermore, SRL opportunities must be supported by a classroom environment that provides "teacher autonomy support and structure" (Sierens et al., 2009, p. 61). Self-regulatory efficacy may result from increased practice with SRL opportunities in a classroom that is structured to support autonomy (Caprara et al., 2008). Therefore, implementation of SRL opportunities cannot be done in isolation; rather, it must be effectively integrated, supported, and engrained in the classroom environment.

Based on the above conceptual framework, Table 1.1 outlines the relationship between each construct. These constructs, as well as the literature documenting each one-arrow or two-arrow relationship between constructs, will be further explored in the following literature review. Teacher beliefs, autonomy support and autonomy structure, and student self-regulatory efficacy will be investigated as three primary factors affecting the presence and effectiveness of SRL opportunities in the high school classroom. Because of the complexity of the Problem of Practice, for each of these primary factors, secondary factors (e.g., goal orientations and student self-regulatory efficacy) will also be investigated.

Table 1.1

Literature Documenting Relationships Between Constructs in Conceptual Framework

Relationship Between Constructs	References
Preservice Education → Teacher Beliefs	Michalsky and Schechter (2013); Perry et al. (2006)
Professional Development → Teacher Beliefs	See Chapter 3's Literature Review
Teacher Knowledge ↔ Teacher Beliefs	Buehl and Fives (2009)
Teacher Knowledge → SRL Opportunities	Spruce and Bol (2015)
Teacher Beliefs → SRL Opportunities	Dignath-van Ewijk and van der Werf (2012); Spruce and Bol (2015)
Teacher Beliefs → Curriculum and Assessment	Waeytens, Lens, and Vandenberghe (2002)
Curriculum and Assessment → Autonomy Structure	Mouratidis et al. (2013)
Autonomy Structure → Curriculum and Assessment	Mouratidis et al. (2013)
Autonomy Structure ↔ Autonomy Support	Mouratidis et al. (2013); Sierens et al. (2009)
Autonomy Support → SRL Opportunities	Sierens et al. (2009)
Autonomy Structure → SRL Opportunities	Sierens et al. (2009)
Curriculum and Assessment ↔ Effective Strategy Use	Cooper et al. (2005); Eilam and Reiter (2014)
Effective Strategy Use → Student Self-Regulatory Efficacy	Bell and Pape (2014); Caprara et al. (2008)
Goal Orientations → Student Self-Regulatory Efficacy	Ainley and Patrick (2006); Patrick, Ryan, and Pintrich (1999)
Disposition to Learning Environment → Student Self-Regulatory Efficacy	Ben-Eliyahu and Linnenbrink-Garcia (2015); Gresalfi (2009)
Student Self-Regulatory Efficacy → SRL Opportunities	Caprara et al. (2008)

Teacher Beliefs

Teachers' beliefs on learning – how learning occurs and how learning should be instructed – are difficult to evaluate as they are personal, subjective, and deeply engrained (Dignath-van Ewijk & van der Werf, 2012). Yet, these belief systems impact teacher behavior and more importantly, their adoption of new behaviors (Dignath-van Ewijk & van der Werf, 2012). These beliefs may originate from traditional preservice education programs and in-service professional development. Because teacher beliefs on the value of supporting students as self-regulated learners may be shaped by teachers' preservice education background, some universities are evaluating how they can mentor prospective educators to develop skills and knowledge for effective support of SRL in the classroom (Michalsky & Schechter, 2013; Perry et al., 2006). These training programs will be further discussed in the Chapter 3 literature review. For the focus of this literature review, only practicing teachers' beliefs will be evaluated to understand instructional predispositions and construction of learning environments.

From a sociocultural perspective, teachers' explicit instruction on effective strategy use and modeling of approaches are essential for students to increase their self-regulatory behaviors (Beishuizen, 2008; Paris & Paris, 2001). Dignath-van Ewijk and van der Werf (2012) evaluated 47 primary school teachers' beliefs toward SRL to determine if there was an association between teachers' beliefs and strategy instruction. Participants self-reported their beliefs based on scales and open-ended questions. Teachers' responses on the adapted Lombaerts et al.'s (2009) SRL teacher belief scale reflected a relatively positive belief system towards SRL. However, when probed further through open-ended questions, teachers' responses reflected more of a tendency to create learning

environments that supported autonomy versus a deliberate attempt to communicate with students about how to self-regulate. Dignath-van Ewijk and van der Werf (2012) propose that teachers may embody a lack of knowledge about how to manage learner autonomy in the classroom and thus, fail to provide students with the necessary tools or SRL strategies to support their independent learning.

As the sample size represents primary school teachers' beliefs, Dignath-van Ewijk and van der Werf's (2012) results cannot be generalized to secondary school teachers. These results, which confirm Lombaerts et al.'s (2009) examination of 553 elementary teachers' beliefs on SRL, exhibit the disconnect between ideology and practicality: what teachers believe may not translate into behavior. Furthermore, Dignath-van Ewijk and van der Werf (2012) conclude that "teachers might want to produce a more positive picture so that their self-report could be subject to social desirability" (p. 8). Thus, the researchers recommend classroom observations for a more holistic representation of teacher beliefs and practices.

Teacher knowledge. Teacher beliefs and teacher knowledge are also intricately linked; these beliefs may shape what teachers perceive as critical sources of teaching knowledge and how teachers perceive knowledge construction (Hofer, 2000; Jehng, Johnson, & Anderson, 1993). To examine teacher perceptions on pedagogical knowledge sources, Buehl and Fives (2009) surveyed 53 preservice and 57 practicing teachers from two different geographic regions of the United States via the Open-Ended Teaching Belief Questionnaire. They developed this questionnaire, which included open-ended and closed-ended questions, to qualitatively investigate the relationship between teacher beliefs and teacher knowledge. In their data analysis, Buehl and Fives categorized teacher

knowledge as any knowledge that impacts classroom practice. Buehl and Fives discovered that although some respondents acknowledged formal training as a source for teacher knowledge, most teacher respondents reported that observational and collaborative learning were integral to shaping their knowledge on how to teach. Additionally, teacher respondents discussed how self-awareness and self-reflection were critical to their knowledge growth.

Specific to teacher knowledge on SRL, Spruce and Bol (2015) discovered that favorable teacher beliefs did not necessary translate into increased knowledge on SRL or effective practice of SRL. Spruce and Bol acknowledge that teachers may be unaware of their gaps in knowledge on supporting and presenting strategies for students' SRL in the classroom, especially if their main source of knowledge is through informal sources and/or they do not engage in self-reflection or self-awareness of their pedagogical knowledge base (Buehl & Fives, 2009).

Curriculum and assessment. To investigate how teachers' beliefs about supporting students in "learning to learn" translate into teachers' perceptions of their instructional role and development of curriculum, Waeytens et al. (2002) interviewed 53 secondary school teachers. The interview questions focused on understanding teachers' conceptions of "learning to learn" and how those conceptions implemented their curriculum task design and instructional approach. They classified teachers' conceptualizations of "learning to learn" as either a broad (e.g., promoting student awareness of their cognitive role) or narrow vision (e.g., teaching study skills or strategies to learn content). Fifteen teachers were classified as having a broad vision and 36 were classified as having a narrow vision; two teachers were omitted from the

qualitative analysis because they did not value "learning to learn" in their instructional approaches. Teachers categorized with a narrow vision of "learning to learn" stressed that there was not enough time in the curriculum (i.e., due to content coverage) to help students understand how to learn. In contrast, teachers categorized with a broad vision of "learning to learn" reported that they consistently make time to help students understand how to process information in the curriculum. Teachers with a narrow vision also reported more teacher-controlled instructional behaviors compared to teachers with a broad vision. Because Waeytens et al. relied on teachers' self-report of classroom behaviors, observations of teachers' instructional approaches in the classroom may provide further insight into how teachers' beliefs about learning impact teachers' instructional approaches and curriculum design. However, Waeytens et al.'s findings suggest that teachers who view "learning to learn" in a narrow lens may be less likely to integrate curricular approaches that support students in developing mindsets and self-regulatory skills. As most teachers create their own curriculum and assessment opportunities for student mastery of learning and reflection, these artifacts may serve as another methodology for evaluating teachers' instructional beliefs, knowledge, and practices.

Case studies of SRL interventions provide a glimpse of the benefits and challenges of the teacher-level and learner-level implementation. Cooper et al. (2005) worked closely with seven high school English teachers to implement self-regulatory learning instruction and opportunities in their curriculum through a series of professional development sessions led by the researcher, once a week for three months. These interventions focused on higher-order questioning strategies, modeling of tasks, and goal

setting. The participating teachers varied in educational backgrounds and years of teaching experience, yet they all struggled with offering more complex learning tasks to their students. By the end of the short-term intervention lasting nine weeks, teachers reported during follow-up interviews that they witnessed greater student verbalization of learning as students grappled with higher-order thinking. For these teachers, this collaborative intervention method with the researchers and peer teachers was their beginning approach to implementing SRL opportunities; however, evaluation of a long-term curriculum model would provide further insight into the benefits of integrating SRL because of student internalization of volitional strategy use.

Eilam and Reiter (2014) compared two standardized year-long, ninth-grade science curriculum models: one classified as teacher controlled and the other classified as self-regulated. Each classroom consisted of roughly the same number of participants (27; 25, respectively) whose baseline science knowledge scores as analyzed through a MANOVA indicated no significant difference between cohorts. Students within the self-regulated cohort could choose what they wanted to learn and how they wanted to learn through the use of various self-report instruments. These choices and self-report instruments empowered students to set personal learning goals, to internalize teacher feedback, and to determine appropriate behaviors for content/skill acquisition, which are all important components to self-regulation. In contrast, students in the teacher controlled cohort followed predetermined curriculum sequencing, pacing, and assessments. They were offered minimal choices in their learning.

While observing the same ninth grade science curriculum over the course of a school year, Eilam and Reiter (2014) collected and compared baseline, interim, and

summative student self-evaluations on SRL skills, as well as evaluated content outcomes between the two class models. As students in the self-regulated cohort progressed through the year, their self-regulation practices increased and improved based on researcher coding of students' weekly self-report instrument, yearly self-report instrument, and test performance self-report instrument. Compared to student self-report instruments, which may only prompt student generalization of their self-regulatory usage, these instruments helped provide researchers with a longitudinal view of students' development of self-regulatory strategies, such as setting weekly goals and enactment of plans. Students also began to understand the linkage between their strategy use and outcomes. Eilam and Reiter's success is partly due to the longitudinal nature, a full academic year, of their study as substantial time was provided for students to adjust to this new style of learning. However, there appears to be a significant learning process and skill-based benefit in providing SRL opportunities in the classroom, supporting the sociocultural process of learning. Furthermore, from a social cognitive perspective, their results suggest that SRL opportunities can be integrated within a standardized curriculum as long as the teacher's instructional discourse shifts to support student-centered learning. Explicit curriculum adjustment for more SRL opportunities may function as the first step; yet, teachers must also focus on the classroom environment as a means to provide autonomy support and structure for guiding independent learning.

Autonomy Support and Autonomy Structure

The classroom environment is typically constructed by the teacher and thus, influenced by their beliefs about the process of learning. The classroom is also the formalized learning environment for students to acquire knowledge and apply it.

Traditionally, classroom environments consisted of didactic instruction and teacher control models. However, because of the recent emphasis on 21st century skill sets, the model of the high school classroom has shifted to student ownership of learning and the role of teacher as facilitator (Lemley et al., 2014). These shifts necessitate an emphasis on supporting and structuring independent learning in the classroom (Bolhuis & Voeten, 2001). Reeve and Jang (2006) define autonomy support as "the interpersonal behavior one person provides to involve and nurture another person's internally locused [sic], volitional intentions to act" (p. 210). In comparison, Mouratidis et al. (2013) define autonomy structure as clear communication of expectations and modeling of expected behaviors. Research has focused on the role of autonomy support and autonomy structure as singular and parallel constructs (Mouratidis et al., 2013; Reeve & Jang, 2006; Sierens et al., 2009). These constructs have been studied from the perspective of teachers, specifically what conditions and approaches they model and promote to students, as well as from the perspective of students, specifically what they observe about certain classroom conditions that encourage their SRL (Mouratidis et al., 2013; Reeve & Jang, 2006; Sierens et al., 2009).

Teachers who create autonomy-structured classrooms provide clear expectations, rationales, and frameworks for student learning. Mouratidis et al. (2013) explored how students' perceptions of autonomy structure affect their usage of effective learning strategies. They surveyed 606 middle and high school students about their perceptions of classroom structure and their use of learning strategies. Based on these self-report questionnaires, Mouratidis et al. validated their hypothesis that "students belonging to well-structured classrooms would report higher levels of effective learning strategies"

than ill-structured classrooms (p. 181). Well-structured classrooms communicate learning expectations and provide specific and intermittent feedback; whereas, ill-structured classrooms appear chaotic and disconnected to overall course learning goals. Although they did not study the linkage between autonomy support and autonomy structure, they did acknowledge autonomy support as an important communication filter for classroom rules and expectations.

Teachers who create autonomy supportive classrooms provide motivational encouragement during their interactions with students. To test the effectiveness of autonomy-supportive behaviors, Reeve and Jang (2006) randomly assigned the role of teacher or student to 72 pairs of prospective teachers. They then assigned an instructional task to the person in the teacher role, unbeknownst to the person in the student role. Teacher and student interactions were video-recorded to evaluate the instructional discourse. Trained external raters judged these video-recorded interactions based on 22 instructional behaviors hypothesized from the literature and classified either as teacher autonomy supportive or teacher controlling. Following the instructional activity, participants in the student role completed survey data on perceived autonomy. The video-recorded ratings were then compared to student survey results. As self-report measures of perceived autonomy support may be unreliable, Reeve and Jang's dualistic methodology of observation and self-report measurements validated that certain behaviors and interactions are autonomy supportive, while others are "autonomy-thwarts" in the instructional environment (p. 216). Their observed autonomy supportive behaviors pertain to communication via inquiry-based questioning, specific use of praise, and time spent listening to student thought processes. However, their evaluation of autonomy

supportive behaviors is more predictive of prospective teachers' usage of these behaviors versus real-time evaluation of discourse between teachers and students as prospective teachers were imitating students. Sierens et al. (2009) also adds that autonomy supportive environments value student choice and time for peer collaboration. Therefore, autonomy support should not be generated simply by teacher communication but rather an overall sense of student empowerment in the classroom environment.

From a social cognitive perspective, because SRL originates as an internal, volitional strategy, understanding how teachers can nurture or inhibit this process is crucial to the construction of learning environments. While most researchers studied autonomy support and autonomy structure as single constructs, Sierens et al. (2009) studied them as dually connected to environmental promotion of SRL. They assessed 526 high school students' perceived teacher autonomy support and autonomy structure. In conjunction with the autonomy support and autonomy structure ratings, students also assessed their use of self-regulatory strategies. Sierens et al. concluded that autonomy support and autonomy structure are positively correlated with promoting SRL. From a sociocultural perspective, the combination of outcomes noted above suggest that autonomy support and autonomy structure should work as parallel constructs to promote student guided learning and to engage students in the ongoing process of learning construction. Consideration must also be given to the role of student self-regulatory efficacy and goal orientations as intermediaries to perceived classroom environments.

Student Self-Regulatory Efficacy

Although the role of the teacher and the construction of the classroom environment are important, students must also know how to regulate their own learning

with a certain level of efficacy. Caprara et al. (2008), based on Bandura's (1986) concept of self-efficacy, created a specific measure for understanding a student's confidence level in regulating their own learning. For linguistic purposes, they termed this construct as self-regulatory efficacy. Self-regulatory efficacy is a complicated construct that may also be impacted by students' disposition toward the learning environment and goal orientations.

In addition, students' self-efficacy beliefs precede students' academic self-concept (Bong & Skaalvik, 2003). Although females primarily exhibit higher levels of self-regulatory efficacy and academic self-concept, these findings are not generalizable to an all-female school as classroom and school conditions are important variables (Patterson & Pahlke, 2011; Sullivan, 2009). For example, while females in single-sex schools experience greater academic self-concept in male dominated academic fields than their co-educational counterparts, "academically selective schools [are also] negatively associated with self-concept" (Sullivan, 2009, p. 281). Pajares' (2002) review of the literature also noted that females are typically associated with higher self-regulatory efficacy. Yet, this efficacy depends on student confidence and self-belief in subject domains. Therefore, if teachers fail to provide students with individualized learning opportunities, self-regulatory efficacy may decrease regardless of gender (Pajares, 2002). Patterson and Pahlke's (2011) case study evaluated the role of student characteristics and school connectedness in predicting girls' academic success in a single-sex middle school. They discovered that the school classroom environment serves as a mediator in predicting students' academic performance based on their learning processes. Furthermore, van Velzen's (2013) qualitative study noted that most students struggle with complex

verbalization of their learning processes, irrespective of gender. In summary, SRL becomes an important component of cognitive awareness for students to understand how they learn best and for schools to understand how they can best support learners' development.

Effective strategy use. Self-regulatory efficacy is driven by an awareness of effective strategy use based on varying tasks, especially as these tasks increase in complexity. Caprara et al. (2008) investigated students' perception of their self-regulatory efficacy through a longitudinal study of 412 students. Through self-report questionnaires, they collected data at multiple points throughout participants' junior high and high school development. They discovered that students experienced a decline in their perceived self-regulatory efficacy as they progressed in the academic curriculum and educational system. These findings suggest the importance of increasing not only teacher efficacy with SRL, but also student efficacy. Caprara et al. recommend that teachers and parents guide students through self-regulatory processes, such as goal setting, progress monitoring, and reflection on self-efficacy when performing academic tasks. To generalize their recommendations, if students experience more opportunities to practice SRL then their efficacy will increase.

To support students' attribution of effective strategy use and success in academic tasks (Borkowski, Weyhing & Carr, 1988), Bell and Pape (2014) implemented a strategy observation tool in a middle school mathematics classroom. Embedded in the tool, students were prompted to record their strategies and graph their quiz scores along with their self-efficacy perceptions. Over a nine-week period, students were able to track how their use of study strategies affected their performance. Because students were not as

explicit in their strategy use as originally planned, Bell and Pape concluded that teachers may need to be more explicit in their dialogic interactions with students about strategy use to foster students' SRL development and perceptions of self-efficacy.

Disposition to learning environment. In addition, students' frequency in employing SRL strategies may also be driven by their disposition to the learning environment (Ben-Eliyahu & Linnenbrink-Garcia, 2015). To explore how external environments shape internal learning perceptions, Gresalfi (2009) conducted case studies of middle school student products and transcripts in a mathematics classroom. Her findings suggest that student dispositions shift based on the context and time of the school year. The contexts in which learners are engaged promote either a passive or active style of learning. Thus, she found that a learner's perception of the learning environment and the learning environment itself may influence implementation and reinforcement of SRL as supported by the social cognitive and sociocultural perspectives. A learner's perception of the learning environment may also influence his or her engagement in SRL processes (Ben-Eliyahu & Linnenbrink-Garcia, 2015). In a survey of high school students (n = 178) and college students (n = 280), Ben-Eliyahu and Linnenbrink-Garcia discovered that students reported higher usage of SRL strategies in their favorite courses compared to their least favorite courses. Although the authors did not expect this result, they did hypothesize that learners may be more engaged and focused on succeeding in their favorite courses whereas learners in their least favorite courses may be focused on trying to "survive the course."

Mindsets and goal orientations. In describing SRL, Zimmerman (2002) identifies the linkage between mindset and processes. He states,

> Self-regulation is not a mental ability or an academic performance skill; rather it is the self-directive process by which learners transform their mental abilities into academic skills. Learning is viewed as an activity that students do for themselves in a *proactive* way rather than as a covert event that happens to them in reaction to teaching. (p. 65)

Recently, there has been a push for teachers to focus on mindsets in the classroom, specifically growth versus fixed. In an effort to understand how these mindsets connect to students' goal orientations, which have been linked to students' engagement in self-regulatory processes, a Venn diagram (Figure 1.2) was constructed.

Figure 1.2

Venn Diagram on Growth/Fixed Mindsets and Mastery/Performance Goal Orientations

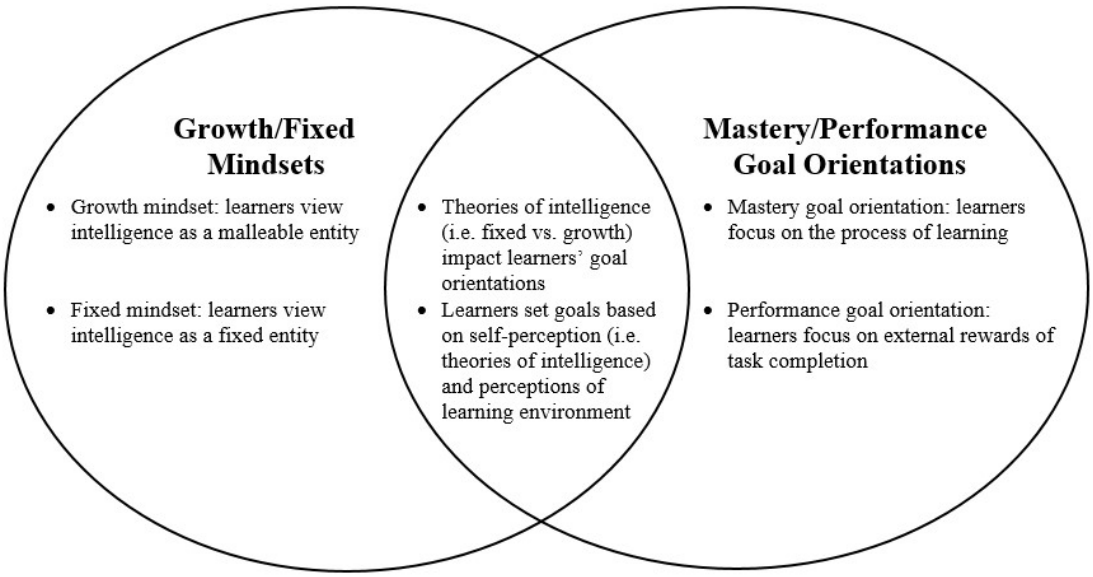


Figure 1.2 illustrates how learners' mastery and performance goal setting processes are related to their theories of intelligence as growth- or fixed-oriented, respectively (Blackwell, Trzesniewski, & Dweck, 2007). Learners with growth mindsets view intelligence as a malleable entity that can be fostered by learning from failure and

understanding/evaluating effective strategy use (Dweck, 2016). In contrast, learners with fixed mindsets view intelligence as a fixed entity. Thus, these learners may avoid challenges based on a fear of failure (Dweck, 2016). In alignment with social cognitive theories, learners set goals based on their perceptions of self (i.e., fixed or growth mindset oriented) and their perceptions of the learning environment (Dweck, 1986). Learners with mastery goal orientations approach learning with a "desire to gain understanding, insight, or skill; learning is valued as an end in itself" (Patrick et al., 1999, p. 155). In contrast, learners with performance goal orientations "desire to engage in learning tasks to garner consequences external to the task itself, such as receiving rewards or avoiding punishment" (Patrick et al., 1999, p. 156). Further, learners with performance goal orientations may engage in avoidance strategies (Turner et al., 2002). Students' goal orientations and their subsequent goal setting based on these orientations are essential components to fostering SRL. The following section will further explore literature on how goal orientations impact students' self-regulatory efficacy.

Goal orientations. Students can be classified as either performance or mastery goal-oriented. In Zimmerman and Schunk's (2009) discussion on the relationship between goal orientations and SRL, they noted how students with mastery goals engage in more SRL processes than students with performance goals. To understand how students' perceptions of tasks influence their goal orientations, Ainley and Patrick (2006) investigated how 155 seventh and eighth graders approach an online writing task. While completing the online writing task, students were administered single-item Likert-type scale questions regarding their perception of the task at hand. Their findings revealed that students initially classified as mastery goal-oriented strongly and positively correlated

with topic interest and on-task mastery goals, and exhibited more reflective patterns on topic interest and self-achievement. In contrast, students initially classified as performance goal-oriented did not relate to topic interest, strongly and positively correlated with on-task performance goals, and showed less of a significant relationship to reflective judgments. These results suggest that students' perceptions of the task at hand and their goal orientation influences their SRL behaviors (i.e., relationship between forethought processes and task interest). However, their task choice was disengaged from the curriculum. Therefore, it is unclear if students' goal orientations would change based on a task embedded in the day-to-day curriculum.

In addition to evaluating the relationship between students' goal orientations and academic tasks, Patrick et al. (1999) also investigated how males' and females' goal orientations relate to SRL strategy use and self-efficacy. Participants included 445 seventh- and eighth-grade students, 226 females and 219 males, who completed self-report questionnaires based on items from the Patterns of Adaptable Learning Survey (Midgley, Maehr, & Urdan, 1993) to assess goal orientation and items from the Motivated Strategies for Learning Questionnaire (Pintrich, Smith, Garcia, & McKeachie, 1991) to assess self-regulatory strategy use and self-efficacy in social studies, English, and mathematics courses. Females identified as mastery goal-oriented at baseline and at end of year measurements experienced increased self-efficacy and increased usage of cognitive strategies. Furthermore, gender differences in goal orientations varied most in social studies and least in mathematics. Patrick et al. suggest that this may be due to teacher beliefs associated with curriculum construction in less-defined and sequential

courses, such as social studies and English, compared to more-defined, sequential courses, such as mathematics.

Students with low self-regulatory efficacy typically display avoidance strategies. Although Turner et al. (2002) did not study the relationship between self-efficacy and SRL behaviors, they did evaluate how the classroom learning environment, particularly in regards to goal structures and discourse, contributes to student avoidance strategies. To study these relationships, they surveyed 1,197 students and observed 9 teachers, these participants were part of a larger longitudinal study on middle school mathematics. Based on surveys about students' self-handicapping behaviors and multiple observations of teachers' discourse in the classroom, Turner et al. analyzed differences between students' self-reports and teachers' behaviors in the classroom environment. Their findings exhibited lower reporting of self-avoidance strategies in classrooms that promoted a variety of instructional discourses valuing learning, mastery goals, and engagement. Turner et al.'s findings cannot conclusively be generalized to other academic domains; rather they serve as a sample of how the learning community can support students in learning how to learn. An essential component to SRL is student ability to seek help when facing challenging or complex tasks. Therefore, the classroom learning community serves a vital role in supporting and modeling this behavior.

Summary of Factors and Underlying Causes

Although the regulatory process is unique to each learner, there are observable classroom conditions and teacher factors that impact the accessibility of curricula opportunities to promote SRL (Paris & Paris, 2001). Boekaerts (1997) suggests that "for SRL to develop, teachers must create a powerful learning environment, in which students are allowed and inspired to design their own learning experiments" (p. 162). A classroom

environment that supports a high level of autonomy support and autonomy structure provides students with independent and collaborative opportunities to engage in their own learning (Sierens et al., 2009). By directing their own learning, students are able to practice and enhance their self-regulatory strategies. Thus, the following four factors serve as Chapter 2's empirical foundation for understanding current classroom supports for students' SRL and teacher perceptions and implementation of SRL strategies: (a) teacher beliefs on SRL, (b) teacher implementation of SRL opportunities, (c) student perceptions of autonomy support and autonomy structure in the classroom, and (d) student perceptions of their self-regulatory efficacy.

CHAPTER 2: EMPIRICAL EXAMINATION OF UNDERLYING FACTORS

This chapter begins with a review of the factors discussed in Chapter 1 and a statement of the needs assessment objectives. The underlying factors explored in Chapter 1's literature review serve as the operationalized variables for empirical exploration of the professional context under study, Little Flower Academy. The purpose of this chapter is to provide contextual information on Little Flower Academy, a private, all-female high school in a Midwestern state, as well as outline the needs assessment design and data collection procedures. Finally, the chapter concludes with a discussion of the empirical findings from the needs assessment study.

Review of Underlying Factors and Needs Assessment Objectives

In the Chapter 1 literature review, three main constructs were identified as predictors of SRL instruction and support: (a) teacher beliefs (Dignath-van Ewijk & van der Werf, 2012); (b) autonomy support and autonomy structure (Sierens et al., 2009); and (c) student self-regulatory efficacy (Caprara et al., 2008). Teachers' pedagogical beliefs on the value of SRL may impact the construction of learning environments, particularly in terms of curriculum and student self-assessment (Dignath-van Ewijk & van der Werf, 2012). Furthermore, SRL opportunities must be supported by a classroom environment that is autonomy supportive and structured (Sierens et al., 2009). Self-regulatory efficacy may result from increased practice with SRL opportunities in an autonomy supportive and structured classroom (Caprara et al., 2008). Therefore, implementation of SRL opportunities must be effectively integrated, supported, and engrained in the classroom environment. Therefore, the needs assessment objectives were to (a) understand how teachers' beliefs about SRL influence their implementation of SRL opportunities in the

classroom, (b) investigate students' perceptions of autonomy support and autonomy structure in the classroom, and (c) assess students' self-regulatory efficacy.

Context of Study

Little Flower Academy, the professional context under investigation, is a private, all-female, Catholic high school located in a Midwestern state. The professional context is in the beginning phases of implementing a strategic academic plan focused on creating 21st century learning environments for all students particularly with an emphasis on student-centered learning, exploratory learning opportunities, and college and career pathways. As a one-to-one tablet learning environment, Little Flower Academy's academic mission is to empower young women as critical thinkers and servant leaders. The school also has a significant commitment to its alumnae base, which is evident in their employment of 13 alumnae as teaching staff and the consistent enrollment of legacy students from the Little Flower Academy family.

Little Flower Academy employs 28 full-time teachers and 11 part-time teachers with an average of 17 years of teaching experience. Faculty licensure areas range from traditional content areas to intervention specialists in mild and moderate. Teacher demographics reveal diversity based on degree level (Bachelor's = 16; Master's = 22; Doctoral = 1) and gender (Females = 28; Males = 11). However, the professional context does not have much diversity in terms of race (98% White) and religion (94% Catholic). All teachers are employed on one-year contracts. A typical teacher course load is six out of seven class periods. Beginning in 2013, teachers meet weekly in department Professional Learning Communities (PLCs) to discuss, create, and revise curriculum maps, as well as develop common student learning outcomes and align assessment

measures. Next year, teachers in each department PLC will begin collecting student data and evaluating student performance based on learning outcomes.

The professional context enrolls approximately 500 female students from the ages of 14 to 19. Student demographics are primarily homogenous – white, Catholic, from middle-class families. Students typically enroll from local Catholic K-8 grade schools within a 10-mile radius of Little Flower Academy. However, the professional context is increasing its outreach with the distribution of more educational vouchers to potential students with the goal of enhancing racial and ethnic diversity. A large majority (96-97%) of students at Little Flower Academy pursue postsecondary education at a four-year university or college.

Needs Assessment Factors

The purpose of this needs assessment was to investigate factors associated with promoting students' SRL in the classroom environment, as discussed in the literature review. The key variables in this needs assessment study were teacher beliefs on SRL, teacher implementation of SRL opportunities for students, student self-regulatory efficacy, and student perceptions of teachers' autonomy support and autonomy structure.

Teacher beliefs. As Dignath-van Ewijk and van der Werf (2012) point out, teacher beliefs about SRL is a complicated construct because these beliefs may be influenced by pedagogical practices, theories on how learning occurs, and beliefs about strategy instruction in the curriculum. Despite this complexity, evidence suggests that teacher beliefs about SRL may influence teachers' willingness to implement it as an instructional approach (Dignath-van Ewijk & van der Werf, 2012). Therefore, researchers have studied teachers' beliefs as a variable for introducing and implementing SRL in the classroom. The literature commonly evaluates teacher beliefs with teacher self-report

scales (Dignath-van Ewijk & van der Werf, 2012; Lombaerts et al., 2009). As the concept of students' SRL can be interpreted in multiple ways, it was also important to provide a definition of SRL prior to investigating associated teacher beliefs (see Appendix A for the definition of SRL provided to all teacher participants). Overall, the goal of selecting this construct as a variable was to understand teacher beliefs about SRL.

Implementation of SRL opportunities. Vrieling et al. (2013) define SRL opportunities as a teacher's ability to design learning opportunities that promote students' metacognitive awareness and SRL strategy use. The literature evaluates teacher implementation of SRL opportunities based on self-report questionnaires that ask questions about teacher instructional design and classroom construction. These questions are then linked to specific SRL principles, such as goal setting, metacognitive knowledge activation, and judgments. Overall, the goal of exploring teacher implementation of SRL opportunities was to identify collective teacher propensity for providing explicit SRL strategy use and creating learning environments that support students' SRL.

Student self-regulatory efficacy. As mentioned in the literature review of Chapter 1, Caprara et al. (2008) termed students' confidence level while regulating their learning as self-regulatory efficacy. Self-regulatory efficacy is driven by an awareness of effective strategy use based on varying tasks, especially as these tasks increase in complexity. The literature evaluates student perceptions of self-regulatory efficacy based on student self-reports. Overall, the goal of exploring the construct of self-regulatory efficacy was to evaluate student perception of their efficacy during the process of SRL.

Perceived autonomy support and autonomy structure. Research on construction of learning communities has focused on the role of autonomy support and

structure in predicting SRL opportunities (Sierens et al., 2009). As mentioned in the Chapter 1 literature review, when teachers provide autonomy support in the classroom, students have a voice in their learning and feel supported in exploring ideas and concepts of personal interest to them (Reeve & Jang, 2006). When teachers provide autonomy structure in the classroom, students are fully aware of expectations and receive necessary feedback and monitoring of achievement towards the task expectations (Mouratidis et al., 2013). The literature evaluates autonomy support and structure through student self-reports based on perceived classroom goal orientations and structures, as well as classroom observations. As multiple classroom observations were impractical for this needs assessment, student reports of perceived autonomy support and autonomy structure of the learning community served as an alternative quantitative methodology. Overall, the goal of selecting this construct as a variable was to understand how students perceive autonomy support and autonomy structure for SRL in their classrooms.

Rationale for autonomy structure and autonomy support as one construct. In Sierens et al.'s (2009) study of high school student perceptions of autonomy support and autonomy structure in the classroom, they discovered that only when autonomy structure was combined with at least a moderate level of autonomy support did it have a positive effect on students' self-regulatory strategy use. Further, Mouratidis et al. (2013) notes the importance of providing autonomy structure in a supportive way, citing Deci and Ryan's (2000) research that "it is highly likely that structure will be harmful if it is provided in a coercive manner" (p. 184). Based on this literature, the decision was made to investigate students' perceptions of autonomy support and autonomy structure as parallel constructs for supporting their use of self-regulatory strategies in the classroom.

Needs Assessment Research Questions

To fully investigate this problem, two groups of internal stakeholders were needed as survey respondents: teachers and students. For research question one (RQ1), teacher beliefs functioned as the independent variable and teachers' implementation of SRL opportunities in their classroom as the dependent variable. For research question two (RQ2), perceived autonomy support and autonomy structure by teachers functioned as the independent variable and students' self-regulatory efficacy as the dependent variable. The two research questions for the problem under investigation are as follows:

RQ1: How do teachers' beliefs about SRL correlate with implementation of SRL opportunities in a high school classroom?

RQ2: What is the correlation between female students' self-regulatory efficacy and perceived autonomy support and autonomy structure by teachers within a high school classroom?

Method

This section discusses the participant recruitment process and instrument utilized in the teacher and student needs assessment surveys.

Participant Recruitment

For the needs assessment data collection, teachers and students were recruited at Little Flower Academy. The following section outlines the recruitment process.

Teachers. A target accrual of 30 teacher respondents, a majority of the employed faculty, was desired. However, despite multiple recruitment attempts (e.g., verbal presentation at a faculty meeting and email communication), only 22 teachers completed the informed consent process and participated in the study. At the time of the needs assessment data collection, the professional context faced severe trust issues between

teachers and the administration due to recent layoffs, which may have impacted teacher participation in the data collection. Due to the small population size, the only inclusion criterion was the requirement that participants teach in a high school classroom environment for at least three courses a day. In addition, demographic information was not requested from teachers as it could have identified participants due to the small sample size.

Students. A target accrual of 100 student respondents, 25 per grade level, was desired. However, despite multiple recruitment attempts (e.g., verbal presentations in homeroom, morning announcements, and email communication), only 65 students completed the informed consent process and participated in the study. The primary enrollment barrier was due to student need for parental consent as students would forget to obtain it. A stratified random sample of students per grade level (15 ninth grade students, 13 tenth grade students, 19 eleventh grade students, 18 twelfth grade students) was employed as the sample. The rationale for stratification by grade was based on research evidence that students' SRL efficacy decreases as academic difficulty increases (Caprara et al., 2008). Thus, for this needs assessment study and due to departmental focus on course sequencing, grade levels are being used as a proxy for academic difficulty.

Instrumentation

To study the variables of interest, four different instruments were utilized in the needs assessment surveys. This section will outline each of these instruments.

Teacher survey. The teacher survey measured two variables: teacher beliefs and teacher implementation of SRL opportunities for students. Prior to survey questions, a definition of SRL was provided to teacher participants (see Appendix A for the definition

of SRL). This definition and the teacher belief survey items were adapted from Lombaerts et al.'s (2009) SRL Teacher Belief Scale. The scale was modified due to a change in audience from primary school teachers to the professional context's focal audience of secondary school teachers. Therefore, some items that only pertain to primary school students were omitted and other items' language was minimally adapted to reflect secondary female students. An example of an omitted item that did not align with the secondary audience is "SRL provides pupils with a more thorough preparation for their transition to secondary education."

The SRL opportunities survey items were adapted from Vrieling et al.'s (2013) Self-Regulated Learning Opportunities Questionnaire (SRLOQ), Teacher Educator's Version. The original SRLOQ scale consisted of five subscales: planning, monitoring of the learning process, zone of proximal development, coaching/judging, and collaboration. The questionnaire was modified to align with the survey's definition of SRL (Lombaerts et al., 2009) and target audience of teachers of secondary students; therefore, some items on the SRLOQ were not used. An example of an omitted item that did not align with the target population is "Students describe the value of their learning goals for my course towards classroom practice." The omitted item was geared towards a population of instructors of student teachers and thus, the "task value activation" targeted in this item did not align with the survey's definition of SRL (Vrieling et al., 2013, p. 819). The SRLOQ was primarily focused on an online course environment; whereas, the professional context for this study functions as a traditional classroom format. Therefore, some items that only pertain to online course environments were omitted. An example of an omitted item that only pertains to an online course environment is "A few days before

the lessons start, students have access to relevant documents for my course (e.g., through the electronic learning environment)."

There were seven items evaluating teacher beliefs and 15 items evaluating implementation of SRL opportunities for a total of 22 closed-ended questions. A sample item evaluating teacher beliefs is "I believe that students should be able to make decisions about the sequence and duration of their learning activities more often." A sample item evaluating SRL opportunities is "In my course, students divide big assignments into smaller parts." All closed-ended questions, in which respondents selected one response to a statement, functioned on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) (see Appendix A for the teacher survey instrument).

Student survey. The student survey measured two variables: self-regulatory efficacy and perceived autonomy support and autonomy structure. Survey questions began with two demographic questions asking for the students' grade level and estimated GPA. The self-regulatory efficacy survey items were adapted from Cleary's (2006) Self-Regulation Strategy Inventory (SRSI). The scale was modified due to some items addressing SRL behaviors outside of the classroom environment. As the Problem of Practice focuses only on the school environment, these items were omitted. An example of an omitted item that only pertains to SRL behaviors outside of the classroom environment is "I study hard even when there are more fun things to do at home."

The perceived autonomy support and autonomy structure survey items were adapted from Belmont et al.'s (1992) Student Report of Teacher Context (SRTC) instrument, as well as developed based on Sierens et al.'s (2009) research. Belmont et

al.'s (1992) instrument evaluated three variables: involvement, autonomy support, and autonomy structure. Therefore, items were only used if they were aligned with the autonomy support and autonomy structure variables.

There were seven items evaluating students' self-regulatory efficacy and 10 items evaluating perceived autonomy support and structure for a total of 17 closed-ended questions. A sample item evaluating self-regulatory efficacy is "In my classes at Little Flower Academy high school, I reflect on my progress and adjust my performance." A sample item of perceived autonomy support is "In my classes at Little Flower Academy high school, my teacher provides encouragement to achieve my learning goals." A sample item of perceived autonomy structure is "In my classes at Little Flower Academy high school, my teacher sets clear expectations." All closed-ended questions utilized a 5-point Likert scale ranging from 1 (none of my classes) to 5 (all of my classes) (see Appendix B for the student survey instrument).

Procedure

This section discusses the data collection and data analysis procedures for the needs assessment study.

Data collection. The following section outlines the recruitment and informed consent procedure for teacher and student participants.

Teachers. Teachers were recruited at a faculty meeting in which the researcher discussed the rationale of the study as well as the informed consent procedure for interested participants. Teachers also received follow-up recruitment emails to encourage participation in this study. The informed consent process occurred in the teachers' classrooms. Following documentation of informed consent, an online survey consisting of a definition of SRL and 22 closed-ended questions was distributed to participants

through their school email account. To insure confidentiality, participant numbers were provided to teacher participants.

Students. Following identification of a stratified random sample, students were recruited through email communication and morning announcements at the school. An information session was held in the researcher's homeroom. At this point in time, the informed consent document was sent home with students along with a cover letter to parents. Following documentation of informed consent, an online survey consisting of two demographic questions and 17 closed-ended questions was distributed to student participants through their school email account. To insure confidentiality, participant numbers were provided to student participants.

Data analysis. For the first research question, implementation of SRL opportunities functioned as the dependent variable and teacher beliefs on SRL functioned as the independent variable. For the second research question, self-regulatory efficacy functioned as the dependent variable and perceived autonomy support and structure functioned as the independent variable. The data management plan outlines the research questions, variables, methodology, and statistical analyses (see Table 2.1 for data management plan). Descriptive statistical analyses, reliability analyses, and Pearson correlational analyses were conducted for each data comparison.

Table 2.1

Data Management Plan

Research Questions	Variables	Quantitative Data	Analysis
1. How do teachers' beliefs about SRL correlate with implementation of SRL opportunities in the Little Flower Academy high school classroom?	Teacher beliefs	Teacher surveys	Descriptive, Correlation
	Teacher implementation of self-regulated learning opportunities	Teacher surveys	Descriptive, Correlation
2. What is the correlation between female students' self-regulatory efficacy and perceived autonomy support and structure by teachers within Little Flower Academy high school classrooms?	Student self-regulatory Efficacy	Student surveys	Descriptive, Correlation
	Perceived autonomy support and structure	Student surveys	Descriptive, Correlation

Needs Assessment Findings

Research Question One – Teachers' Beliefs and Implementation of SRL Opportunities

Lombaerts et al.'s (2009) SRL Teacher Belief scale was utilized to evaluate teacher beliefs on SRL. In their study, this scale was internally validated with a Cronbach's alpha score of 0.79. The adapted SRL Teacher Belief subscale consisting of seven items, used in this data collection, had a Cronbach's alpha score of 0.63, implying questionable internal validity (George & Mallery, 2003). Teachers' mean response scores

on the adapted SRL Teacher Belief scale ranged from 3.14 to 4.71 on a 5-point Likert-scale. Mean response scores for each teacher belief survey item are listed in Table 2.2.

Table 2.2

Descriptive Statistics for Adapted SRL Teacher Belief Scale (*n* = 22)

Item	*M*	*SD*
1. I believe that SRL makes students evaluate their learning approach better.	4.23	0.61
2. I believe that students should be able to make decisions about the sequence and duration of their learning activities more often.	3.82	0.66
3. I believe that students should be able to decide when they work on an assignment more often.	3.73	0.94
4. I believe that a self-regulated environment makes it easier to take into account students' experiences and interests.	4.36	0.66
5. I believe that students have the capacity to determine what they want to learn.	3.73	0.83
6. I believe that each student should be given the opportunity to regulate her own learning.	3.95	0.84
7. I believe that SRL leads to a more efficient collaboration between students.	3.77	0.81

Vrieling et al.'s (2013) SRLOQ scale, Teacher Educator's Version, was utilized to evaluate teacher implementation of SRL opportunities in the high school classroom. Vrieling et al.'s (2013) SRLOQ scale was internally validated based on each of its five subscales: planning, monitoring of the learning process, zone of proximal development, coaching/judging, and collaboration. The Cronbach alpha scores for these five subscales ranged from 0.74 to 0.85. The adapted SRLOQ subscale consisting of 15 items, used in this data collection, had a Cronbach's alpha score of 0.68, implying questionable internal validity (George & Mallery, 2003). Due to the limited items used from each original subscale, Cronbach's alpha scores were not calculated for each of the five subscales of the SRLOQ. Teachers' mean response scores on the adapted SRLOQ ranged from 3.60 to

4.67 on a 5-point Likert-scale. Mean response scores for each SRL opportunities survey item are listed in Table 2.3.

Table 2.3

Descriptive Statistics for Adapted SRLOQ Scale, Teacher Version (n = 22)

Item	*M*	*SD*
1. In my courses/classrooms students describe personal learning goals.	3.41	1.01
2. In my courses/classrooms students describe short-term learning goals to master their long-term personal learning goals.	3.23	1.02
3. In my courses/classrooms students divide big assignments into smaller parts.	4.00	0.82
4. In my courses/classrooms students describe their progress based on obvious criteria (i.e., rubric).	4.00	0.62
5. In my courses/classrooms students describe how their thinking and acting have changed due to the obtained new knowledge and skills.	3.86	0.77
6. In my courses/classrooms students provide peer feedback to other students.	3.82	0.85
7. In my courses/classrooms my assignments connect well to students' prior knowledge.	4.14	0.56
8. My course provides opportunities for student choice.	3.86	0.89
9. In my courses/classrooms I provide feedback to students' learning progress.	4.32	0.78
10. In my courses/classrooms I make use of planned moments for students on which they can meet me to ask questions about their progress or students can always meet me when they have questions about their progress.	4.50	0.74
11. In my courses/classrooms I grade the assignments based on previously formulated judging criteria.	4.36	0.66
12. In my courses/classrooms I demonstrate that making mistakes is part of the learning process.	4.55	0.51
13. In my courses/classrooms I stress students' strong qualities.	4.27	0.70
14. During collaboration, I pay attention to students' specific collaboration skills such as dividing tasks and reporting to each other.	4.09	0.68
15. During collaboration, I pay attention to students' general social and communicative skills such as good listening and respecting other opinions.	4.36	0.58

A Pearson's R correlation for the data revealed that teacher beliefs and implementation of SRL opportunities were not significant with a weak negative relationship, $r = -.11$, $N = 22$, $p =$ ns, two tails (see Table 2.4).

Table 2.4

Correlation Results for Research Question One

Variable	1	2
1. Teacher beliefs	–	-.11
2. Implementation of SRL opportunities		–

Research Question Two – Students' Self-Regulatory Efficacy and Perceived Autonomy Support and Autonomy Structure

Cleary's (2006) SRSI scale was utilized to evaluate students' self-regulatory efficacy. In their study, this scale was internally validated with a Cronbach's alpha score of 0.92. The adapted SRSI scale consisting of seven items, used in this data collection, had a Cronbach's alpha score of 0.71 which is considered acceptable. Students' mean scores on the adapted SRSI ranged from 1.57 to 4.86 on a 5-point Likert-scale. Mean response scores for each SRSI survey item are listed in Table 2.5. Cleary's (2006) initial psychometric analysis concludes that the higher the mean score on the SRSI, the higher the students' effective self-regulation strategy use.

Table 2.5

Descriptive Statistics for Adapted SRSI Scale (*n* = 65)

Item	*M*	*SD*
1. In my classes at Little Flower Academy, I reflect on my progress and adjust my performance.	3.80	1.20
2. In my classes at Little Flower Academy, I feel confident in my ability to approach varying tasks (i.e., tests, papers, projects).	3.74	1.06
3. In my classes at Little Flower Academy, I know which strategies are best for approaching varying tasks (i.e., tests, papers, projects).	3.85	1.08
4. In my classes at Little Flower Academy, I ask my teacher questions when I do not understand something.	3.85	1.12
5. In my classes at Little Flower Academy, I tell myself exactly what I want to accomplish with my learning.	3.43	1.24
6. In my classes at Little Flower Academy, I tell myself to keep trying when I can't learn a concept or skill.	3.91	1.11
7. In my classes at Little Flower Academy, I try to forget about the topics that I have trouble learning. (reversed scoring)	3.88	1.27

Belmont et al.'s (1992) SRTC was utilized to evaluate students' perceived autonomy support and autonomy structure in the classroom. In their study, this scale was internally validated with a Cronbach's alpha score of 0.76 for the autonomy structure subscale and 0.79 for the autonomy support subscale. The adapted SRTC scale consisting of 10 items from the original autonomy support and autonomy structure subscales, used in this data collection, had a Cronbach's alpha score of 0.89, implying good internal reliability (George & Mallery, 2003). Students' mean scores on the adapted SRTC with combined autonomy support and autonomy structure subscales ranged from 1.60 to 4.80 on a 5-point Likert-scale. Mean response scores for each autonomy support and autonomy structure survey item are listed in Table 2.6.

Table 2.6

Descriptive Statistics for Adapted SRTC Scale (n = 65)

Item	*M*	*SD*
1. In my classes at Little Flower Academy, I am provided opportunities to set my own learning goals.	3.00	1.26
2. In my classes at Little Flower Academy, I am able to make decisions about what I want to learn.	2.26	0.99
3. In my classes at Little Flower Academy, I am able to make decisions about how I want to learn concepts and/or skills.	2.82	1.22
4. In my classes at Little Flower Academy, I can collaborate with my peers.	4.17	0.96
5. In my classes at Little Flower Academy, my teacher sets clear expectations.	3.65	1.08
6. In my classes at Little Flower Academy, my teacher provides specific feedback to achieve my learning goals.	3.15	1.03
7. In my classes at Little Flower Academy, my teacher provides encouragement to achieve my learning goals.	3.46	1.19
8. In my classes at Little Flower Academy, my teacher models how to approach varying tasks (i.e., tests, papers, projects).	3.18	1.06
9. In my classes at Little Flower Academy, my teacher offers help when I do not understand concepts and/or skills.	3.55	1.03
10. In my classes at Little Flower Academy, my teacher explains why we are learning what we are learning.	3.02	1.15

A Pearson's R correlation for the data revealed that students' perceived autonomy support and autonomy structure compared to their self-regulatory efficacy were significant with a moderate positive relationship, $r = .60$, $N = 65$, $p < .01$, two tails. The correlational analysis suggests that as students' perceptions of classroom environments as providing autonomy support and autonomy structure increases, self-regulatory efficacy increases (see Table 2.7).

Table 2.7

Correlation Results for Research Question Two

Variable	1	2
1. Perceived autonomy support and structure	–	.60**
2. Self-regulatory efficacy		–

Note. **Correlation is significant at the 0.01 level (2-tailed).

Discussion

From a teacher perspective, the mean scores of items in the teacher beliefs subscale range from 3.73 to 4.36. Items three and five produced the lowest mean scores (M = 3.73) and item three produced the largest variability in responses (SD = 0.94). For item three, where teachers were asked their level of agreement with whether students should be able to decide when they work on an assignment more often, 68% of teacher respondents either agreed or strongly agreed. For item five, where teachers were asked their level of agreement with whether students have the capacity to determine what they want to learn, 58% of teacher respondents either agreed or strongly agreed. These responses suggest a range of teacher perceptions on student ability to individualize their instruction through choice and pacing, key tenets of SRL (Zimmerman, 2002). In comparison, Lombaerts et al. (2009) reported 30% of teacher respondents either agreed or strongly agreed with item three and only 7% of teacher respondents either agreed or strongly agreed with item five. Thus, the results from this needs assessment study suggest that these secondary teachers are more favorable in their pedagogical beliefs about SRL than the primary school teacher population in Lombaerts et al.'s (2009) study. Yet, some

of this favorability may be attributed to a difference in target student population and thus, perceptions of age on students' ability to self-regulate.

Teachers' mean response scores on the adapted SRLOQ ranged from 3.60 to 4.67 suggesting that teachers are implementing SRL opportunities the majority of the time. Items 10 and 12 produced the highest mean scores (M = 4.50, 4.55, respectively). For item 10, which explored whether teachers make use of planned moments for students on which they can meet to ask questions about their progress or teachers make sure students can always meet when they have questions about their progress, 95% of teacher respondents either agreed or strongly agreed. For item 12, which explored whether teachers demonstrate that making mistakes is part of the learning process, 100% of teacher respondents either agreed or strongly agreed. In contrast, items one and two produced the lowest mean scores (M = 3.41, 3.23, respectively) and the largest variability in responses (SD = 1.01, 1.02, respectively). For item one, which explored whether teachers ask students to describe personal learning goals in their courses/classrooms, 55% of teacher respondents either agreed or strongly agreed. For item two, which explored whether teachers ask students to describe short-term learning goals to master their long-term personal learning goals in their courses/classrooms, 50% of teacher respondents either agreed or strongly agreed. These findings suggest that teachers are supportive of students' learning growth (see items 10 and 12), yet do not implement goal setting as a proactive measure to regulate students' learning (see items one and two) (Zimmerman, 2002).

Based on the teacher survey data, a disconnect emerges between teacher perceptions of classroom practices and implemented opportunities for students to self-

regulate in the classroom. In the adapted SRLOQ survey, items that addressed specific student-driven aspects of SRL in the curriculum (see items one through six and eight) all scored lower, items ranged from 3.23 to 4.00, than items that referenced teacher actions in the classroom (see items seven and nine to fifteen), items ranged from 4.09 to 4.55. This disconnect between teacher beliefs and classroom implementation of SRL opportunities needs to be further evaluated. Potential questions that these data raise are: Would classroom observations serve as a better indicator for evaluating implementation of SRL opportunities? Are teachers' beliefs on SRL static or do they change based on grade level, content area, and/or years of teaching experience? Do teachers simply rate their behavior higher to be socially more acceptable? As the school shifts towards more 21st century learning approaches, these results suggest a potential need for educating teachers on how to support students in their ability to both learn self-regulation skills and apply them.

From a student perspective, students' mean scores on the autonomy support and autonomy structure subscale ranged from 1.60 to 4.80 suggesting that there is a large variability in student perceptions of the classroom experiences as supportive and structured to provide independent learning. Items two and three produced the lowest mean scores (M = 2.26, 2.82, respectively) on the autonomy support and autonomy structure subscale. For item two, which explored whether students are able to make decisions about what they want to learn, only 11% of student respondents reported that four or more of their classes provided these choices. For item three, which explored whether students are able to make decisions about how they want to learn concepts and/or skills, 32% of student respondents reported that four or more of their classes provided

these choices. Student survey results suggest that some students are not receiving the necessary support to regulate their own learning across the curriculum.

Further analysis of the student data by grade level did not reveal any significant differences in students' self-regulatory efficacy and perceptions of autonomy support and structure. However, the results comparing the autonomy support and autonomy structure subscale and the SRSI scale are significant ($p < .01$) with a very low probability of these results occurring by chance. Thus, these correlational results suggest that if students' perception of autonomy support and structure increased, then their self-regulatory efficacy would also increase.

When viewing the teacher and student data as an aggregate sample, it appears that there is a significant need for improving classroom-level support structures. For example, students reported being able to make decisions about what they want to learn in one to two of their seven classes ($M = 2.26$; $SD = 0.99$), whereas teachers reported agreement ($M = 3.86$, $SD = 0.89$) with the statement: "My course provides opportunities for student choice." Further, students reported being able to set their own learning goals in three of their seven classes ($M = 3.00$; $SD = 1.26$), whereas teachers reported agreement ($M = 3.41$, $SD = 1.01$) with the statement: "In my courses/classroom, students describe personal learning goals." Overall, teachers responded more favorably to the survey questions than students. Therefore, the researcher must investigate potential causes for these differences (e.g., teacher perception versus self-report of their implementation; student perception versus observation of teacher practice). Literature on SRL suggests classroom observations and student field work logs as potential avenues for further investigation (Cooper et al., 2005; Eilam & Reiter, 2014).

Constraints and Implications

There are three main limitations to this needs assessment study. First, the small teacher sample size may not have accurately reflected the population's perception of the Problem of Practice and the sample size was highly susceptible to outliers. Second, all survey responses were self-report. Although the literature operationalizes variables in this manner, there may have been discrepancies between teacher and student respondents' perceptions and reality of these behaviors and practices in the classroom. In addition, as the researcher worked in the same context as surveyed teachers and students, there may have been instances of participants providing socially acceptable answers. Third, although the survey data were useful in identifying the Problem of Practice, teacher follow-up interviews and/or classroom observations of teacher practice may have provided more detail on underlying causes and factors to the Problem of Practice.

CHAPTER 3: INTERVENTION LITERATURE REVIEW

This chapter's literature review will first discuss what makes professional development an effective intervention for teacher growth. Based on these findings, a collaborative approach to professional development will be explored through a discussion of PLC model, followed by a review on how different professional development models currently support teachers in developing an awareness of integrating self-regulatory processes and support conditions in the classroom. Finally, this chapter concludes with a discussion on how to design an effective professional development program to support teacher practice of self-regulation strategies in the classroom.

Implications of Needs Assessment Findings

When reviewing the teacher and student needs assessment data as an aggregate sample, a discrepancy emerged between teacher beliefs and student perceptions of teacher practices that support SRL. Some items from the needs assessment data revealed that teachers have favorable pedagogical beliefs about supporting SRL in the classroom and believe that they are providing opportunities for students to self-regulate. Yet, students' survey responses suggested that teachers are only occasionally implementing practices that research suggests as supports for students' SRL.

Further validating the needs assessment data, Spruce and Bol (2015) evaluated the interconnectedness of self-report teacher beliefs, teacher knowledge, and classroom application of SRL instruction and support. Spruce and Bol's (2015) findings suggest that "what teachers say and what they do are not consistently aligned" and recommend "that teachers need to be taught how to self-regulate, and then be provided with tools and support to share this knowledge with students" (p. 272). Paris and Paris (2001) argue that

"teachers need to be able to describe appropriate strategies – what they are, how they operate, and when they should be applied – and … design open-ended instructional activities and scaffold assistance for student inquiry" (p. 99). Thus, it appeared from the literature and needs assessment data that there was a significant need for an intervention to provide teachers with the knowledge to effectively implement these practices to support students' self-regulatory learning into the classroom.

Theoretical Framework

Teacher Change

Changing teacher behavior in the classroom is a complex endeavor. Freeman (1989) proposes that long-term teacher change must be driven by a teacher's self-awareness: an awareness of his/her practice, an awareness of his/her knowledge base, and an awareness of his/her attitudes towards learning. He acknowledges that this level of increased awareness does not need to manifest as an internal process; it can originate through collaborative partnerships. However, Freeman contends that teacher change focused on teacher training is driven by a need to fulfill a competency, and thus it is not a sustainable method of change. He prefers a change model focused on teacher development wherein the collaborator and teacher work in an ongoing partnership. Of note, Freeman views teacher training and teacher development as contrasting modes of professional education that cannot be integrated. Guskey (2002) disagrees with Freeman by arguing that teacher change in behavior precedes a change in attitudes or beliefs. Based on Guskey's theoretical change model, teachers must have successful experiences with application of instructional concepts in classroom practice prior to changing their belief system. He advocates for professional development as "an experientially based

learning process" (p. 384). In his study of diffusion of innovations, Rogers (2003) argues for a change agent's focus on awareness-knowledge followed by how-to knowledge, similar to Freeman's (1989) proposition. Yet, in Rogers (2003) discussion of the five perceived attributes of an innovation, he also discusses the need for trialability, defined as knowledge in action, as a predictor of adoption.

To further clarify the role of the teacher in increasing his/her own awareness, knowledge, and practice, Cochran-Smith and Lytle (1993) propose varying types of evidence teachers should collect for critical reflection. They classify evidence into two types: empirical and conceptual. Empirical evidence includes articles in peer reviewed journals, oral inquiries, and classroom/school studies; conceptual evidence includes essays that evaluate ideas and philosophies about teaching. Although Cochran-Smith and Lytle (1993) examined the teacher's role as the initiator of critical analysis in their classroom, their data-based suggestions are critical for teacher engagement and reflection in change models. They also stress the need for ongoing data collection and collaborative inquiry as a means for increasing knowledge that may change practice in the classroom.

Overall, this theoretical framework emphasizes the role of teacher awareness, knowledge, and implementation as tenets for developing a catalyst for change, such as professional development. The following literature will be reviewed from the lens of how teachers and professional development facilitators actively and collaboratively engage in a formalized setting to increase teacher awareness, knowledge, and practice of SRL.

Literature Review

SRL is a critical student competency for 21st century learning (Umphrey, 2010). SRL describes the process of *how* students learn how to learn. As noted in the literature

review in Chapter 1, although this process can be marked by three cyclical phases: forethought, performance, and self-reflection (Zimmerman, 2002), implementation of these phases in the classroom setting provides a unique set of challenges (e.g., teachers' pedagogical beliefs on SRL, and students' self-regulatory efficacy). Despite the challenges, Nilson (2013) argues that "every instructor and every course has the time to provide self-regulated learning opportunities because they need not entail much time in or out of class, for [instructors] or [their] students. Rather than take away from the content, they help students learn it" (p. 14). As Butler (2002) and Nilson (2013) contend, teacher practice of explicit SRL instruction and support strategies can support the attainment of curriculum goals and increase student academic achievement.

In order to increase teacher knowledge and practice of supporting students' 21st century learning skills and competencies, such as SRL, The Partnership for 21st Century Learning (n.d.) emphasizes the influential role of professional development. They define the role of professional development as "highlight[ing] ways teachers can seize opportunities for integrating 21st century skills, tools and teaching strategies into their classroom practice — and help[ing] them identify what activities they can replace/de-emphasize." Dede (2010) also recognizes the influential role of professional development on teacher growth. He argues that the current lack of professional development in schools may promote teachers' deeply engrained, traditional views on how learning occurs, ultimately contributing to an underdevelopment of students' 21st century skills. Thus, the following literature review discusses characteristics of effective professional development and how researchers have designed professional development programs to support teachers' knowledge and practice of SRL strategies in the classroom.

The following literature was obtained by searching databases, including Johns Hopkins University's Catalyst (library catalog), EbscoHost, and JSTOR, and search engines, such as Google Scholar. The following search terms were used: SRL instruction and teacher professional development, collaborative professional development models, teacher change, teacher practice of SRL strategies, and teacher knowledge of SRL strategies. Peer-reviewed, empirical sources published within the last 15 years were given preference. Additional preference was given to K-12 or preservice teacher research contexts.

Effective Professional Development

From the theoretical perspective of teacher change, the primary goal of professional development is to produce long-term learning outcomes for teachers' professional growth, which in turn produce effective student learning outcomes (Darling-Hammond, 1998). To effectively measure outcomes, researchers of teacher learning proposed a call to action for researchers to address how "teacher learning, professional development, teacher knowledge, and student learning" are intricately connected (Wilson & Berne, 1999, p. 204). However, this goal is not easy to attain because of the varied classroom experiences, pedagogical knowledge, and beliefs among teachers. In an attempt to explore key characteristics of effective professional development, Garet, Porter, Desimone, Birman, and Yoon (2001) surveyed a national randomly selected sample of 1,027 mathematics and science educators. These educators participated in the Eisenhower Professional Development Program, a program that funded a wide-range of professional development activities. Their methodology provides an opportunity to analyze characteristics of multiple professional development experiences instead of the

effectiveness of just one program or model, increasing the reliability and generalizability of their results.

The authors' evaluation of high-quality professional development focused on structural and core features. The three main categories of structural features included: form of professional development, time duration, and degree of collective participation. Form of professional development refers to the type of professional development activity (e.g., one-day workshop, coaching model), time duration refers to the number of professional development contact hours and the span of the professional development sessions, and degree of collective participation refers to the opportunity for teachers from the same school to collaborate during professional development knowledge building. The three main categories of core features included: content focus, teachers' active learning, and coherence with professional goals. Content focus refers to professional development that aligns with teachers' content area knowledge, active learning refers to teachers' active engagement in the professional development (e.g., observations, reviews of student work), and coherence refers to the extent in which professional development aligns with teachers' professional goals and their district or school goals. Participants also completed a self-report using a five-point Likert scale survey, on how the professional development affected their knowledge and skills, as well as their current classroom practices. Based on regression analyses, participating teachers viewed effective professional development as: sustained over time, focused on specific academic subject matter with practical applications and testing within their own classroom, and integrated into their daily schedule (Garet et al., 2001). Their findings also validate previous researchers' assumptions that collective participation of teachers from the same school supports

higher levels of classroom application (Ball, 1996; Knapp, 1997; Newmann & Associates, 1996; Talbert & McLaughlin, 1993). To promote SRL processes of teachers, Sztajn (2011) also argues for teacher voice in professional development design and for researchers to report this information for any professional development programs.

When evaluating teacher participants' viewpoints of effective professional development, Rogers et al. (2007) extended the sample of Garet et al.'s (2001) research by also looking at the professional development facilitators' viewpoints of effective professional development. Seventy-two elementary, middle, and high school mathematics and science teachers and 24 facilitators were interviewed about their professional development experience, a two- to three-week inquiry-based model with follow-up evaluations. Two major themes voiced by teachers and facilitators as components of effective professional development were classroom practical applications and the value of learning in the same manner as the student.

Further arguing for the need of in-house and sustained professional development, Desimone et al. (2006) investigated the number of hours teachers participate in professional development each year. They surveyed 1,218 eighth-grade mathematics teachers as a part of the NAEP assessment, a stratified national probability sample. In their survey, professional development participation was defined as the total number of hours teachers engaged in professional development on topics in mathematics or mathematics education during the course of a school year. They defined brief content-focused professional development as six or fewer hours; medium-length content-focused professional development as six to 16 hours; and sustained content-focused professional development as more than 16 hours in a school year. They did not distinguish between

professional development opportunities as embedded in the school day or outside of school hours. Self-report survey results revealed that more than a quarter of teachers participated in brief content-focused professional development, about twenty percent participated in medium-length content-focused professional development, and a little more than half of teachers participated in sustained content-focused professional development. Desimone et al. also discovered that "private school teachers take less professional development than public school teachers" (p. 203). Although their analysis focused specifically on how mathematics teachers' content knowledge guided their professional development choices, the authors' recommendations and insights suggest a need, especially for private school teachers, to participate in sustained knowledge building and for administrators to offer these high-quality professional development opportunities embedded within school hours.

Although these studies analyzed teacher professional development in the science and mathematics domains, the findings suggest general guidelines for designing effective professional development programs within the school environment. These guidelines highlighted the need for the active role of the teacher in the professional development implementation process, which is also in alignment with theories on teacher change. Per Cochran-Smith and Lytle's (1993) emphasis on oral inquiry, collective participation of teachers from the same school creates a shared knowledge base, which can support teacher growth beyond the course of the professional development program. Based on Gusky's (2002) theory of teacher change, professional development with practical classroom application offers teachers time to apply and experiment with acquired knowledge. Further, sustained professional development supports Freeman's (1989)

proposition that ongoing, collaborative partnerships can increase teachers' awareness of their personal views on how students learning.

Ultimately, any professional development program embedded within a school culture should focus on the process of learning. Contrary to traditional professional development that focuses on knowledge acquisition from the presenter to teachers, professional development that values teacher inquiry provides teachers with control over their professional growth (Dana & Yendol-Hoppey, 2014). Teacher inquiry engages teachers in intentional reflective processes about their classroom practice and empowers teachers to share these reflections with their colleagues for deeper analysis (Dana & Yendol-Hoppey). By empowering teachers as inquirers of their practice, more sustainable shifts in practice may result and teachers may be more willing to take risks. One model for teachers to embody this process of continual improvement is Bryk et al.'s (2015) Plan, Do, Study, Act (PDSA) cycle. A PDSA cycle empowers teachers to plan for a "change" in practice - based on the professional development and professional learning goals of the teacher, do/implement the "change" in practice, study the process of implementation and outcomes, and develop an action plan for future iterations (Bryk et al., 2015). This PDSA cycle can be embedded in all in-house professional development programming to provide time and support for teachers to creatively experiment with newfound knowledge, ideas, and/or skills.

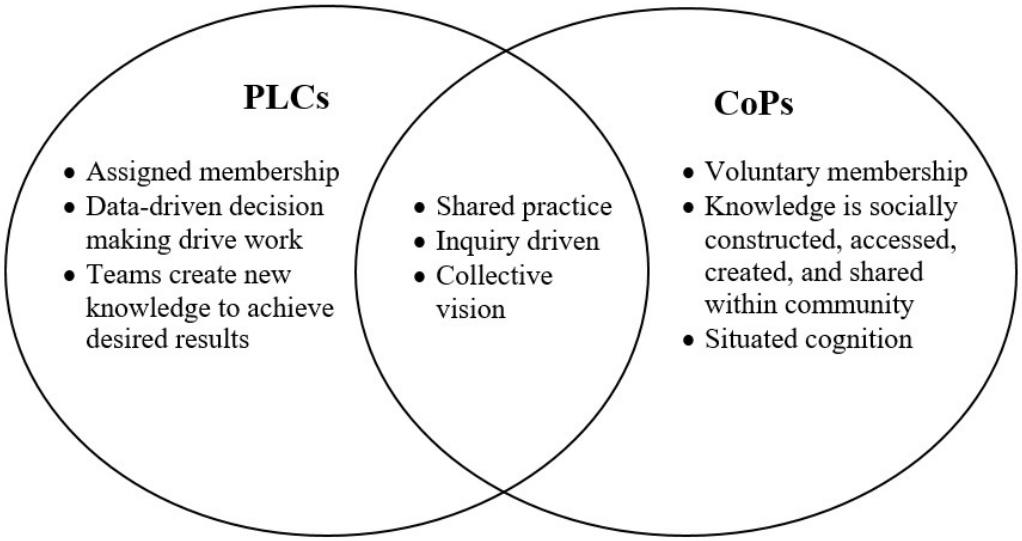
Professional Development as a Collaborative Endeavor

Based on Garet et al.'s (2001) finding and Desimone et al.'s (2006) recommendation that effective professional development involves collaboration from teachers at the same school and teachers' preference for professional development built

within the school schedule, Communities of Practice (CoPs) and PLCs will be further explored as forums to achieve this model. The following Venn diagram (Figure 3.1) adapted from Kobett (2016) explores how CoPs and PLCs overlap in their vision and purpose, yet differ in their conceptions of knowledge and membership. In this section, each of these collaborative forums will be explored in more detail and ultimately, a rationale will be provided for professional development in a PLC forum.

Figure 3.1

Venn Diagram Comparing PLCs and CoPs



(Adapted from Kobett, 2016)

CoPs. Based on a situated learning framework that values learning as a social endeavor, CoPs include a group of individuals who share a collective interest (Wenger-Trayner & Wenger-Trayner, 2015). Based on these collective interests, members share resources, stories, and expertise (Wenger-Trayner & Wenger-Trayner, 2015). Unlike PLCs, CoPs are generally composed of voluntary participation and do not abide by a

structured schedule for collaboration. In the education sector, locally based and virtual CoPs are being developed to support teachers (Hildreth & Kimble, 2008; Kobett, 2016).

PLCs. A common practice among schools employing a model of structured collaboration is the implementation of PLCs. To be classified as a PLC, the planned collaboration must abide by the tenet that all students can learn and must be rooted in a school culture of collaboration (DuFour, 2004). Owen's (2014) case study of PLCs within three elementary and high schools revealed that PLCs function in varying developmental phases, impacting teachers' professional growth and teachers' communal focus on student learning. Based on DuFour's (2004) work, Owen (2014) classified these developmental phases as pre-initiation, initiation, developing, and sustaining. At the lowest level (pre-initiation), teachers experimented with ideas in their own classroom without communal support and at the highest level (sustaining), teachers strategically and collaboratively participated in action research to reach the school's shared goals and visions. Vescio, Ross, and Adams (2008) reviewed 11 studies that focused on the role of PLCs on teacher professional growth and student outcomes. Although shifts in teachers' pedagogical practices were not articulated in most of these studies, these studies did suggest that integration of PLCs supports a shift in the school learning culture and habits of mind among teachers. Their review prompted the following recommendations: PLCs need to be further evaluated by quantitative and qualitative research to explore the connections between teacher growth and learning with student outcomes in the classroom and PLCs should focus on teacher inquiry – prompting teachers to conduct intentional reflection on their classroom practice.

Rationale for professional development in PLC forum. In a comparison of CoPs and PLCs, Blankenship and Ruona (2007) concluded that PLCs focus more on identifying student needs and improving organizational outcomes through structured collaboration, whereas CoPs focus more on improvement of practice through "grassroots" efforts that may or may not align with organizational visions. Because the professional development programming will be designed in response to the needs assessment data from teachers, it is predicted that a structured, sequenced professional development programming will provide teachers with the resources and time needed to reflect on changes in practice. Further, structured collaboration within PLCs provides opportunities for teachers to form more inclusive and deeper social and advice networks that focus on a shared vision (Moolenaar, Sleegers, & Daly, 2012). As a result, teachers who discuss instructional decisions as a team create collective efficacy beliefs that ultimately support student achievement (Moolenaar et al., 2012). Further, as discussed in the theoretical perspective on teacher change, Cochran-Smith and Lytle (1993) suggest oral inquiry as a means for teachers to evaluate their knowledge as a support mechanism for change in practice. Thus, professional development housed within a PLC framework may enhance collective teacher propensity to implement SRL opportunities into the secondary curriculum.

SRL Professional Development Models

In her review of elements crucial to successful professional development, Borko (2004) argued for three classification phases to evaluate the effectiveness of professional development programs. Phase one includes professional development programs designed and implemented for individual sites, phase two includes prescribed professional

development programs facilitated by different individuals at different sites, and phase three includes multiple sites with varied professional development programs. Borko contends that researchers studying phase one professional development models primarily explore the relationship between "the professional development program [and] teachers as learners" (p. 4). Thus, to effectively review each SRL professional development model from the lens of how these professional development programs support and measure teacher growth and practice of SRL strategies in the classroom, only phase one SRL professional development models will be included in this literature review section.

Most professional development models for educating teachers on SRL instructional approaches have been studied in the preservice training sector (Kramarski & Michalsky, 2009; Perry et al., 2006) and elementary school settings (Kramarski & Revach, 2009; Perels et al., 2009). These models value the role of volitional SRL strategy use, in which learners take charge of their own learning, for student and teacher growth (Randi, 2004) within structured collaboration platforms.

Preservice teachers. Professional development designed for preservice teachers focuses on collaborative platforms for teachers to engage in self-regulatory practices (Kramarski & Michalsky, 2009; Perry et al., 2006). Both models provide sustained, ongoing training to promote teacher reflection and awareness of knowledge and practice. In Kramarski and Michalsky's (2009) professional development model, preservice teachers self-report their growth whereas Perry et al.'s (2006) model relies on classroom observation by outside observers.

Kramarski and Michalsky (2009) developed a training program for preservice teachers for acquisition of SRL skills. Their design functioned under the proposition that

"educators and researchers believe that teachers' ability to cultivate learners who are self-regulated during learning is tied to teachers' own self-regulation" (p. 161). Eekelen, Boshuizen, and Vermunt's (2005) phenomenological study in a higher education teacher population (n = 15) supports this proposition by noting that similar to students, teachers vary in their ability to self-regulate their learning. To test this proposition in a preservice teacher population, four categories of learning environments were created to assess their effectiveness: electronic learning (EL) with and without SRL instruction and face to face learning (F2F) with and without self-regulated instruction. Participants included 194 high school preservice teachers. In their research context, EL was described as preservice teacher ability to use electronic resources, outside of those provided by the instructor (F2F condition), to further explore ideas and tasks. SRL and non-SRL environments varied based on the usage of the IMPROVE metacognitive self-questioning strategy tool, which supports learners in solving complex tasks or problems. The IMPROVE metacognitive self-questioning strategy tool is an acronym for the following teaching steps: "introducing the new concepts, metacognitive questioning, practicing, reviewing and reducing difficulties, obtaining mastery, verification, and enrichment" (Mevarech & Kramarski, 1997, p. 369). This tool engages learners in regulatory processes by prompting learners to comprehend the task, activate prior knowledge, utilize effective strategies, and reflect on their progress. The IMPROVE tool has been previously tested in self-regulated outcomes for primary and secondary school students (Kramarski & Mevarech, 2003; Mevarech & Kramarski, 1997). Regardless of cohort assignment, participants received 56 hours of training on general teaching and learning practices (e.g., educational theories on learning and pedagogical practices, such as developing student

learning objectives). The training was embedded in their first-year required Theory of Teaching and Learning Methods course; the course was structured as 14 weekly workshops, each lasting for four hours.

All preservice teacher participants completed the Motivated Strategies for Learning Questionnaire (MSLQ) to assess metacognitive and cognitive strategy use and motivation (Pintrich et al., 1991). Results from a MANOVA of the pretest MSLQ revealed no significant differences between the four learning groups (EL, F2F, EL + SRL, F2F + SRL); results of an ANOVA of the posttest MSLQ revealed that preservice participants in the SRL sub-groups reported higher self-regulatory skills, with the EL and SRL condition producing the highest results. Kramarski and Michalsky's (2009) findings suggest that SRL instruction, focused on teachers' acquisition of these principles, should be embedded into professional development programs that aspire to foster SRL in the classroom. Because their results relied only on self-report measures, observation of teacher practices may serve as a better methodology to justify this professional development approach.

In contrast to Kramarski and Michalsky's (2009) preservice instructional training model, Perry et al. (2006) approached SRL training for preservice teachers through a mentoring approach using practicing teachers. Over a two-year study period, 37 preservice teachers were paired with 37 mentor teachers in K-5 classrooms. Preservice teachers also participated in a professional seminar on SRL instruction, which consisted of ongoing collaborative discussions guided by university faculty, and created mini-units to promote students' SRL in the classroom. Increasing the validity of their results, Perry et al. (2006) observed and coded preservice teachers' SRL practices. Although the year

two data comparing mentor teachers' SRL practices and student teachers' SRL practices were not statistically significant, which they attributed to sample size, their year one regression analysis results revealed a weak predictive relationship (r^2 = .195) between mentors with high SRL practices and student teachers' ability to create high SRL environments.

Both Kramarski and Michalsky (2009) and Perry et al. (2006) stress the role of self-reflection in promoting SRL through the use of the IMPROVE tool and participation in the professional seminar, respectively. Perry et al.'s (2006) model appears to align more with Garet et al.'s (2001) and Rogers et al.'s (2007) recommendations on classroom application because teacher participants created units for implementation versus hypothetical unit plans. However, Perry et al.'s (2006) mentoring approach has significant limitations within a practicing teacher population due to the large time commitment of one-on-one mentoring and the complexity of teachers' course schedules. Further, often the professional context has no precedent for mentoring or professional coaching, thus teacher participants may be unreceptive to this model.

Practicing teachers. Similar to the preservice teacher population, professional development models for practicing teachers focus on collaborative platforms and sustained, ongoing training. Compared to teacher participants in the preservice professional development models, practicing teacher models offer less professional development hours. Researchers' methodological approaches include teacher and student self-reports and classroom observations.

In an attempt to validate the role of SRL instruction as a professional development approach and its subsequent implementation in the classroom, Kramarski

and Revach (2009) divided 64 elementary mathematics teachers into two professional development cohorts. These cohorts either received SRL instructional support, utilizing the same IMPROVE model as in Kramarski and Michalsky's (2009) preservice population, or received no SRL support while solving mathematics problems (i.e., assessing teachers' mathematical knowledge) and while developing lessons based on these problems (i.e., assessing teachers' mathematics pedagogical content knowledge). The research design consisted of four weekly meetings, lasting four hours each, for a total of 16 hours in professional development; this sustained model aligns with Desimone et al.'s (2006) minimal time criteria for high quality professional development. Their mixed methods study revealed that teachers in the SRL cohort achieved higher mathematics content knowledge scores and pedagogical scores based on posttests (Kramarski & Revach, 2009).

One teacher from each cohort in the Kramarski and Revach (2009) sample ($n = 2$) was randomly selected for formal observations while teaching a classroom lesson in order to study how variations in knowledge of SRL strategies would translate into classroom practice. Based on the observation transcript, Kramarski and Revach concluded that the teacher from the SRL cohort implemented more conceptual and metacognitive practices into the classroom. Although their professional development approach aligned with Garet et al.'s (2001) emphasis on practical applications and testing in the classroom, as well as Rogers et al.'s (2007) emphasis on learning as a student, these results cannot be generalized for classroom transmission of SRL instruction and conditional support because of their limited evaluation (i.e., observation of only one teacher from each cohort

for a total of two), and thus need more investigation to best understand how professional development about SRL affects teacher practice.

In an effort to test students' early propensity for SRL skills, Perels et al. (2009) studied the effects of professional development on kindergarten teachers' application of SRL in the classroom. Thirty-five teachers participated in either an experimental or control group. Their training approach followed a similar conjecture as Kramarski and Michalsky (2009) that teachers must be high self-regulated learners in order to serve as a role model for their students. However, they expanded upon previous methodologies by offering explicit instruction on how to implement student learning strategies into the classroom. The teacher experimental cohort participated in five weekly meetings, each two hours long, totaling 10 hours. Teachers' questionnaire responses indicated growth in teachers' knowledge about methods to support SRL and overall self-regulation, defined as composite scores of knowledge on pre-action, action, and post-action phases. Interviews with students from the experimental and control groups revealed that students in the experimental group were able to identify the different phases of SRL. The study context of kindergarten teachers and students may affect the generalizability of their instructional strategy design as it varies from the developmental age of high school students and subsequently, the design of a high school teacher professional development model. However, their use of student interviews helps validate their results, as questionnaires on teachers' classroom practice may only capture a snapshot of SRL promotion and conditional support.

A more appropriate model for strategy instruction in a high school population has been developed by Butler (2002). Her strategic content learning (SCL) model has been

empirically validated in her studies for general classroom application and individual, small-group, and whole-class instruction. The SCL model outlines instructional principles for teachers to engage students in iterative SRL cycles. Based on constructivist and sociocultural theories, she argues that the SCL model should be used by teachers as a tool for co-constructing knowledge with students, to ensure that students are actively participating in complex tasks. Butler offers the following whole-classroom instructional ideas for teachers to support students in developing SRL: teachers engage students in a discussion on analyzing the task at hand (e.g., essay prompt), teachers facilitate discussions in which students share which strategies they will employ to complete the task at hand (e.g., outlining ideas), and, following completion of the task at hand, teachers prompt students to engage in self-evaluation of their performance (e.g., self-assessment via a writing rubric). Thus, her model may serve as a tool for high school teachers to implement SRL strategies and support conditions in the classroom for individual and collaborative learning.

Butler, Lauscher, Jarvis-Selinger, and Beckingham (2004) also tested this SCL model in a two-year professional development program as a means for collaborative inquiry and support for teachers' self-regulation skills. Seven high school teachers participated in the full two-year program; three teachers left after the first year and three teachers joined for the second year. Only one teacher implemented SCL instructional principles (e.g., metacognitive questioning) into a general classroom, all other participants used these principles in special education resource contexts or small group differentiation settings. Although they did not analyze outcomes from the perspective of students, their qualitative and quantitative results revealed sustained improvement in

teacher pedagogical reflection, teacher implementation of SCL instructional principles, and teachers' perceptions of student self-regulatory usage. Use of the SCL professional development model may support teacher self-regulation and subsequent student SRL in the classroom. Further evaluation of the transferability of SCL instructional principles into the general classroom context is needed to prove its effectiveness as a SRL teacher professional development approach.

Strategy instruction. To support students in developing SRL skills, teachers should provide explicit strategy instruction. Yet, in Kistner et al.'s (2010) classroom observations of 20 mathematics teachers, they discovered that teachers primarily provide implicit strategy instruction (e.g., teachers modeling a behavior without explicit instruction on the importance of the behavior). Because explicit strategy instruction is associated with improvements in academic performance (Kistner et al., 2010), professional development approaches should provide teachers with the knowledge on how to implement SRL strategy instruction in conjunction with content area instruction (Gonzalez-DeHass & Willems, 2016). Nilson (2013) recommends the following activities in which teachers can embed SRL strategy instruction to support students in each phase of SRL. In the forethought/planning phase, teachers can prompt students to set learning goals for their course (e.g., students in an English class could develop writing, reading, and presentation goals for the year). Students can also create plans for how they will achieve these goals and continually return to these plans for self-assessment. In the performance/monitoring phase of SRL, teachers can prompt students to create organizational visuals (e.g., concept maps) to make connections between ideas and to identify any gaps in their knowledge. Students can also share these visuals with peers,

sparking students to compare and discuss their organizational representations. In the self-reflection/evaluation phase of SRL, teachers can create postquiz and postexam reflection prompts for students to predict their score and assess their study strategies. Based on these reflections, students can then develop plans for employing or testing future study strategies. Each of these curricular activities are examples of how SRL strategy instruction can be effectively embedded in various content areas. These activities not only provide students with ownership over their learning, but also prompt students to become more aware of how their use of learning strategies affects their performance and understanding.

Overall, professional development on SRL has been analyzed as an effective intervention within the preservice and practicing content domains of teachers. To date, no studies have reviewed the role of professional development on practicing high school teachers' integration of SRL instructional practices in various content area classrooms. The studies discussed in the literature review focused on a teacher population different from the professional context or on one content area (e.g., mathematics) within the high school practicing teacher population. Thus, a major gap existed and provided an opportunity to explore the effectiveness of a professional development program on teachers' strategy instruction and support conditions for SRL in an all-female, private high school.

Summary and Overview of Intervention

The literature review offered varying roadmaps for guidance on creation of professional development programs that address and support teacher practice of SRL strategies. Of note, most of these models were studied in contexts or populations that

differ from an all-female, private high school. Despite the differing contexts, researchers' varying approaches suggested the following model as a viable means for building teachers' awareness and knowledge of SRL instructional practices: professional development led by a facilitator, within school hours and structures (PLCs), focused on strategy instruction and classroom application. Although literature on effective professional development argues for content-specific professional development, students must effectively utilize SRL strategies in all content areas. Therefore, teacher and classroom support for SRL should extend across all content areas. The professional development intervention outlined in Chapter 4 focuses on how a whole school agreement (Karp, Bush, & Dougherty, 2016) among teachers from varying content areas can best support students as self-regulated learners. Even though the professional development program consisted of teachers from multiple content areas, each teacher had multiple opportunities to work with and observe teachers in similar content areas to their own, as well as implement instruction with SRL strategies in his or her content-specific classroom.

It was predicted that targeted professional development may increase teacher knowledge on SRL and thus, translate into teacher practice of SRL strategies in the classroom and increases in students' use of SRL practices. In order to best evaluate the effectiveness of professional development programs and subsequent classroom application, the literature suggested the following methodology.

Intervention Design

To increase teacher practice of SRL strategies in the classroom, ongoing professional development should focus on increasing teacher knowledge of SRL. Perels

et al.'s (2009) discovered that teachers who participated in professional development focused on SRL instruction and support conditions resulted in significant changes from pretest results in the areas of knowledge about SRL and overall self-regulation. Previous researchers, designing SRL professional development models for practicing teachers within the same academic school year, provided between 10 and 16 hours of professional development (Kramarski & Revach, 2009; Perels et al., 2009). Further, sample sizes ranged from 35 practicing teachers assigned to experimental or control groups (Perels et al., 2009) to 194 preservice teachers assigned among four cohorts of control and experimental conditions for SRL instruction and mode of content delivery (Kramarski & Michalsky, 2009). Yet, these researchers worked in teams and with larger population sizes than the professional context for this study. Based on the previously stated professional development literature, it was predicted that a focus on increasing teacher knowledge on SRL, in combination with already favorable pedagogical beliefs, would increase teacher practice of SRL strategies in the classroom. Thus, the purpose of the intervention outlined in Chapter 4 was to provide teachers with the pedagogical knowledge of how to effectively implement SRL strategies into the classroom in order to enhance students' SRL.

CHAPTER 4:

PROFESSIONAL DEVELOPMENT INTERVENTION AND METHODOLOGY

Traditionally, professional development may occur in isolation as a university course or conference, or as the topic of a whole faculty meeting. Of note, teachers at Little Flower Academy were not offered in-house professional development during the 2015-2016 academic school year; instead, they were encouraged to participate in external professional development options. The lack of professional development offered during school hours aligns with Desimone et al.'s (2006) study that revealed private school teachers typically engage in less professional development than public school teachers. Based on the literature review in Chapter 3, the selected intervention of professional development provided a unique opportunity for private school teachers at Little Flower Academy to become self-regulated learners (Kramarski & Michalsky, 2009; Nesbit, 2012). In addition, these teachers were able to collaboratively focus on improving student learning outcomes within their professional context. The purpose of this study was to evaluate the impact of a professional development program designed to increase teacher knowledge of students' SRL and teacher adoption of instructional strategies that developed students' SRL strategies, subsequently supporting high SRL in all students.

Purpose Statement and Research Questions

This study addressed how professional development impacts teacher use of SRL strategies in the classroom. Based on an embedded mixed methods design (Creswell & Plano Clark, 2011), quantitative data on teacher practice of implementing SRL strategies in the classroom were collected before and following the intervention phase of the study. The quantitative data were used to test the theory of treatment that predicted that

professional development positively influences teacher use of strategies in instruction and thereby facilitation of students' SRL strategies. During and following the intervention phase of the study, qualitative data collection was embedded in this intervention study for the purpose of understanding how teacher knowledge of SRL strategies impacts their practice in the classroom. The following research questions guided the data collection and analyses of the intervention:

RQ1: To what extent did professional development on SRL increase teacher presentation of forethought and planning strategies in the classroom?

RQ2: To what extent did professional development on SRL increase teacher presentation of performance and monitoring strategies in the classroom?

RQ3: To what extent did professional development on SRL increase teacher presentation of self-reflection and evaluation strategies in the classroom?

RQ4: To what extent did professional development on SRL increase the effectiveness of teachers' presentation of self-regulation teaching strategies?

Method

The following section will outline the participant recruitment process and discuss each instrument utilized in this study.

Participant Recruitment

Teachers were initially recruited via a verbal presentation at Little Flower Academy's first faculty in-service for the 2016-2017 academic school year. Following initial recruitment, the researcher sent follow-up emails about study participation and the informed consent process. To be eligible to participate in the study, teachers in both the control and intervention groups were required to teach at least one course at Little Flower Academy during the duration of the research study. To encourage teacher participation,

1.5 (15 hours) Continuing Education Units (CEUs) were offered for teachers in the intervention group. A control group, matched with a teacher from the intervention group by an outside referee, was enlisted to measure the professional development's effectiveness for translation into teacher practice of SRL strategies. No compensation was offered to the control group. Teachers were matched based on years of experience and content area expertise.

Previous studies, incorporating SRL professional development models, involved sample sizes ranging from 35 practicing teachers assigned to experimental or control groups (Perels et al., 2009) to 194 preservice teachers assigned among four cohorts (Kramarski & Michalsky, 2009). These researchers worked in teams and with larger population sizes than the professional context ($N = 39$). Seven teachers at Little Flower Academy were ineligible to participate because they did not teach in a classroom setting (i.e., intervention specialists/support staff, Title I teachers). Out of the 32 eligible teachers, 18 teachers at Little Flower Academy consented to participate in the research study. Teacher favorable response to participation was higher than predicted. Teachers whose course loads were classified as part-time (i.e., fewer than four courses) primarily opted out of the study. Because of Little Flower Academy's hybrid block schedule, teachers with part-time course loads struggled with fitting the embedded school hour professional development sessions into their schedule.

Each teacher participant completed a demographic sheet and selected a pseudonym for confidentiality purposes. Based on the information provided by each participant on the demographic sheet, participants were matched by an outside referee to keep the researcher blinded during the baseline classroom observations. Participants were

first matched by content area disciplines and then by years of teaching experience. Nine teachers were assigned to the control group and nine teachers were assigned to the treatment group (see Tables 4.1 and 4.2 for participant pseudonyms and demographics).

Table 4.1

Control Group Participant Demographics and Pseudonyms

Pseudonym	Content Area	Years of Teaching Experience
Carol	Foreign Language	11 – 15
Julie	Mathematics	26 – 30
Liam	English	21 – 25
Madalyn	Health	1 – 5
Morgan	Art	16 – 20
Pete	Social Studies	1 – 5
Samuel	Science	6 – 10
Sarah	Foreign Language	16 – 20
Thomas	Religion	16 – 20

Table 4.2

Intervention Group Participant Demographics and Pseudonyms

Pseudonym	Content Area	Years of Teaching Experience
Adrian	English	1 – 5
Ainsley	Science	21 – 25
Alicia	Mathematics	31 – 35
Edna	Religion	26 – 30
Emma	Mathematics	1 – 5
Estelle	Music	31 – 35
Ingrid	Foreign Language	6 – 10
Isabella	Health	36 – 40
Otto	English	16 – 20

Instrumentation

Due to the timeframe of the intervention, only short-term teacher outcomes as defined in the logic model (see Appendix C) were evaluated. Professional development functioned as the independent variable, teacher knowledge as the mediating variable, and teacher practice of implementing instruction using SRL strategies with their students as

the dependent variable. The following instruments provided data on the variables of interest.

Teacher knowledge of SRL. Teacher knowledge of SRL refers to teachers' description of strategy use to promote and support students' SRL (Spruce & Bol, 2015). Spruce and Bol (2015) measured teacher knowledge through interviews using a formal protocol. A selection of their interview prompts functioned as the reflection prompts at the end of each professional development session. An example prompt is "How would you encourage students to plan for a learning task?" (p. 274). The coding inquiry process is discussed in the qualitative data analysis section.

Teacher practice of SRL strategies. Teacher practice of SRL strategies refers to "observable behaviors teachers may perform to facilitate students' SRL" (Spruce & Bol, 2015, p. 254). Spruce and Bol's (2015) SRL observation instrument divided observable teacher behaviors into three main categories: planning, monitoring, and evaluating. Each category listed specific SRL principles to document "teacher reference to" or "teacher provided opportunities to practice/perform/discuss (directed activity)" (Spruce & Bol, 2015, p. 273). This observation tool was developed by Spruce and Bol (2015) for their study. They pilot tested it with two researchers, producing an inter-rater reliability of 94%. During each classroom observation, on each item, the researcher provided a rating of zero (not observed) to four (strong application with more than one opportunity) for each of the 18 observable SRL principles. These scores were then averaged for each of the three main categories and overall to evaluate teacher adoption of self-regulated strategies in the classroom. Spruce and Bol (2015) defined a high level of adoption as an overall mean score between three and four, a medium level of adoption as an overall

mean score between two and three, and a low level of adoption as an overall mean score between zero to two.

Procedure

Two groups, one intervention group and one control group, were each composed of nine high school teacher participants from an internal pool. Teachers in the intervention group participated in 11 professional development sessions over the course of three months. Process and outcome data were collected throughout the study to evaluate the program effect, as suggested by Rossi, Lipsey, and Freeman (2004). The following section will provide a study timeline (see Table 4.3), an overview of the professional development programming, data collection timeline and processes, and data analysis procedures for evaluation of the effectiveness of the professional development.

Table 4.3

Study Timeline

Month(s)	Activity
August 2016	Researcher recruited teacher participants. Teacher participants completed informed consent process and demographic sheet. Outside referee matched teacher participants into control or intervention group based on content area and years of teaching experience.
September 2016	Researcher conducted one pretest classroom observation of each teacher participant in the control group and intervention group using Spruce and Bol's (2015) SRL observation tool.
October – December 2016	Researcher facilitated 11 professional development sessions, each ranging from 45 to 60 minutes, for teachers in the intervention group. Teachers in the intervention group responded to a professional development reflection prompt at the end of each session. Each prompt was adapted from Spruce and Bol's (2015) interview questions.

Month(s)	Activity
January 2017	Researcher conducted one posttest classroom observation of each teacher participant in the control group and intervention group using Spruce and Bol's (2015) SRL observation tool. Researcher interviewed each teacher participant in the control group and intervention group.

Professional Development Components

During the months of October, November, and December, teachers in the intervention group participated in 11 professional development sessions. Due to the school schedule, eight sessions were embedded in school hours, as recommended by Desimone et al. (2006) and Garet et al. (2001), and three sessions occurred outside of school hours. Sessions offered during school hours ranged from 45 to 60 minutes in duration. Sessions occurring outside of school hours lasted for 60 minutes. The researcher functioned as the facilitator for all professional development sessions.

Per the theoretical perspective on teacher change and extant literature on SRL models discussed in Chapter 4, the professional development curriculum focused on three main components: (a) awareness of the value of SRL, (b) the research-informed cycle of SRL, and (c) effective strategies for classroom implementation of SRL strategies for high school students. These components were based on Perels et al.'s (2009) model; their model discovered that teachers experienced significant changes in their knowledge of SRL following professional development on supporting self-regulated learners in the classrooms. The first component provided an awareness of the value of SRL, motivating teachers to understand how they could adjust their classroom practice to support students'

SRL. The second component provided the knowledge and tools for teachers to effectively implement SRL strategies in their classroom practice. The third component provided teachers with tangible materials to apply their knowledge in classroom instruction. Each component was embedded in the professional development curriculum and extended over multiple sessions.

Professional development sessions included guiding questions to spark inquiry-based learning (Traver, 1998), provided evidence of the topic in both the literature and in videos of teachers' classroom practice, and offered opportunities for discussion of implementation strategies and how to collaborate on moving this initiative forward. Each session concluded with a reflection prompt based on a feature of one of the three main professional development components or the research question and related to the session's topic. Teachers in the intervention group were provided with all materials used within each session, including a copy of Nilson's (2013) book, *Creating Self-Regulated Learners: Strategies to Strengthen Students' Self-Awareness and Learning Skills*. Nilson's book discusses the value of supporting students as self-regulated learners, provides lesson ideas and strategies to encourage students' SRL (e.g., goal setting, meta-assignments, reflective writing, concept maps), and offers suggestions for educators to revamp their curriculum design to support students' SRL. Table 4.4 provides an overview of each professional development session including the session's duration, objective, and activities. PowerPoint slides for each professional development session are included in Appendix D.

Table 4.4

Professional Development Session Objectives, Duration, and Description of Activities

Objective	Duration	Description of Activities
Session 1: What is SRL?	50 minutes	Researcher provided an overview of professional development program and asked participants what they hoped to gain from the professional development. Participants completed an activity – without explicit direction – in a different content area than their license. Participants discussed which strategies they used to complete the task, as well as their feelings while completing the task. Researcher then briefly discussed the SRL cycle and role of the teacher.
Session 2: SRL at Little Flower Academy	50 minutes	Participants discussed the connection between student-centered learning and SRL. Researcher provided an overview of the SRL cycle, as well as a case study of two high school classes – one classified as self-regulated and one classified as teacher-controlled. Participants also watched a video of teachers and students using SRL approaches and discussed these approaches in small, content area groups.
Session 3: Planning Stage of SRL	60 minutes	Nilson's (2013) forethought/planning questions for students functioned as the guiding questions (see Appendix D for a list of these questions in the session 3 PowerPoint slides). Participants composed a list of practical classroom applications to support students during the forethought/planning phase. Participants then read their colleague's ideas and provided feedback and recommendations during a speed dating round.
Session 4: Monitoring Stage of SRL	45 minutes	Based on reflection between session 3 and 4, participants shared, in content area pairs, how they support students in planning for a learning task. Nilson's (2013) performance/monitoring questions for students functioned as the guiding questions (see Appendix D). In small groups, participants received two sets of cards: student scenarios and performance/ monitoring strategies know to foster SRL. Participants discussed why certain strategies would assist "their student" in monitoring their learning and adapting their strategy use.

Table 4.4 continued

Objective	Duration	Description of Activities
Session 5: Evaluation Stage of SRL	60 minutes	Nilson's (2013) evaluation/self-reflection questions for students functioned as the guiding questions (see Appendix D). Participants selected one of three videos to watch of teachers "in action" (Jobs for the Future, 2013; Teaching Channel, n.d.-a; Teaching Channel, n.d.-b). These videos showcased teachers guiding students towards a better understanding of task completion and/or students self-regulating their behavior based on performance. In small groups, participants created an evaluation/self-reflection tool to implement in their classroom. The tools were based on different tasks: knowledge-oriented, performance-oriented, and writing-oriented.
Session 6: SRL in the Classroom	45 minutes	Participants shared their reflection tool (created in session 5) with their peers. Their peers provided feedback for improvement of the tool. As a large group, participants created a checklist to observe SRL strategies/ opportunities in the classroom.
Session 7: Individual Plan, Do, Study, Act (PDSA) cycle – Plan	60 minutes	Based on the checklist created in session 6, participants marked any areas that they would like to improve upon or try out in their classroom. Researcher reviewed the purpose of PDSA cycles. Participants created a plan for a "change" in classroom practice. These plans were documented via a PDSA template (see Appendix E for the PDSA template). Participants then shared their plan with content area partners.
In between sessions 7 and 8: Individual PDSA cycle – Do	Varied depending on how many classes participants implemented change	Participants implemented their change in classroom practice and collected data to present during professional development session 8. Participants completed the "do" category of the PDSA template.
Session 8: Individual PDSA cycle – Study and Act	60 minutes	In small groups, participants shared their change in practice and results with peers. Peers provided feedback – suggestions for improvement and/or ideas for next time. On the PDSA template, participants completed the "study" and "act" categories.

Table 4.4 continued

Objective	Duration	Description of Activities
Session 9: Peer PDSA cycle – Plan	60 minutes	Participants created a plan for a "change" in classroom practice. These plans were documented via a PDSA template. Participants then shared their plan with any peers observing their class.
In between sessions 9 and 10: Peer PDSA cycle – Do	Varied depending on how many classes participants observed and implemented change	Participants implemented their change in classroom practice and were observed by at least one peer. Participants completed the "do" category of the PDSA template. Participants observed one to two peers implement their change in classroom practice and collected data to discuss during professional development session 10.
Session 10: Peer PDSA cycle – Study and Act	60 minutes	In their observation groups, participants shared their observations of each other's classroom practice. Peers provided feedback – suggestions for improvement and/or ideas to continue supporting students' SRL in the classroom. On the PDSA template, participants completed the "study" and "act" categories.
Session 11: Big Picture/Future Plan	50 minutes	Participants discussed their reading of "Student Agency: Preparing for a Lifetime of Learning" by the Partnership for 21st Century Learning. Participants completed a free write with reflections on the professional development process. Participants created a plan for future implementation of strategies or curriculum opportunities to support students as self-regulated learners.

Awareness-knowledge. The first two sessions were spent creating an awareness of the potential benefits of supporting students' self-regulation skills. As alluded to in the teacher change theoretical framework, "change agents may create needs among their clients by pointing out the existence of desirable new ideas" (Rogers, 2003, p. 172). Awareness of SRL and its benefits for student learning and engagement were shared

through videos and a task-oriented activity based on Perels et al.'s (2009) study in which they had teacher participants organize a puzzle.

How-to knowledge and principles-knowledge. Subsequent professional development sessions focused on two components: how-to knowledge and principles-knowledge. Rogers (2003) defines how-to knowledge as necessary information about how to implement new changes or practices into action and principles-knowledge as understanding the underlying principles about why these practices are beneficial. In order to increase teacher participants' how-to knowledge and principles-knowledge, the professional development program included multiple opportunities for teachers to try out new ideas (e.g., Bryk et al.'s PDSA cycles) for supporting self-regulated learners in their classroom and to reflect with their colleagues on why certain SRL strategies worked or did not work in their classroom (e.g., small group data-driven discussions). According to Rogers (2003), a focus on both how-to knowledge and principles-knowledge supports sustainability of initiatives or changes in practice.

The design of these sessions was based on the three phases of the SRL cycle (see RQ1, RQ2, and RQ3): forethought/planning, performance/monitoring, and self-reflection/evaluation (Zimmerman, 2002). For sessions three through five, each SRL stage served as the guiding focus. For session six, teachers collaboratively created a checklist for observing SRL in the classroom. Throughout sessions seven through ten, teachers conducted two PDSA cycles, one individual and one peer, per Bryk et al.'s (2015) framework.

PDSA cycles. The PDSA cycles provided teachers with opportunities to be inquirers of their own practice. Teachers identified a "change" in practice to further

support their students as self-regulated learners. For each of two PDSA cycles, teachers planned their change in practice during the professional development session, implemented their change in between sessions, collaboratively studied the process of implementation and outcomes with their colleagues, and articulated a plan of action for future iterations (Bryk et al., 2015). Teachers documented each step of the PDSA cycle based on the Carnegie Foundation for the Advancement of Teaching's (2016) PDSA form (see Appendix E for PDSA template). The first cycle was individual driven – each teacher independently collected data on the change in practice and shared these results with their colleagues. The second cycle was peer driven – teachers observed one to two peer teachers to collect data on the change in their peer's practice and to provide deeper insight on the effectiveness of teacher presentation of self-regulatory skills in the classroom.

At the end of each session, teacher participants were encouraged to try SRL strategies in their own classrooms to discuss at the beginning of next session, which was in alignment with Cochran-Smith and Lytle's (1993) recommendations on creating a culture of oral inquiry. In the last professional development session, teachers developed and shared with colleagues a plan for implementing SRL opportunities in the curriculum.

Data Collection

Based on the embedded mixed methods design (Creswell & Plano Clark, 2011), quantitative data and qualitative data were collected at various time points in the study to evaluate the process of implementation (see Table 4.5) and proximal outcomes (see Table 4.6). Quantitative data consisted of classroom observations and participant professional development attendance. Qualitative data consisted of professional development

reflection responses, interviews, and researcher field notes during classroom observations and professional development sessions. The following section will discuss the data collection process in more depth.

Process of Implementation

It was important to study the process of implementation to determine if any variations or challenges during the implementation of the logic model (see Appendix C) affected the observed outcomes in the intervention group (Holliday, 2014). Specific to this study, professional development delivered to an intervention group of nine teachers was expected to increase teacher knowledge on SRL and to increase teacher practice of SRL strategies in the classroom. Thus, a strategic process-evaluation plan provided the researcher with data to evaluate the implementation of the professional development programming to the target audience and subsequently, its impact on the desired outcomes (Saunders, Evans, & Joshi, 2005).

The indicators of fidelity aligned with Dusenbury, Brannigan, Falco, and Hansen's (2003) recommendations. To evaluate program dose, attendance at professional development sessions was collected via an Excel spreadsheet. In order to evaluate participant responsiveness to professional development sessions, researcher's perceptions of teacher participation were collected in field notes during and after each session. To evaluate professional development facilitator adherence to the program curriculum, field notes relative to the degree to which the enacted professional development aligned with the planned professional development were collected. To evaluate program differentiation, qualitative data were collected from each teacher participant in the control group through two follow-up interview questions (e.g., "Did you receive any professional

development materials from teachers in the intervention group? If so, what?"). These four measurements are deemed as essential to the fidelity of implementation per the logic model and theory of treatment (see Table 4.5).

Table 4.5

Process of Implementation Data Collection

Fidelity Indicator	Data Source	Data Collection Tool	Frequency	Timeline
Dose – Attendance at professional development sessions	Teacher participants (intervention group)	Excel spreadsheet with participant name and date of professional development session	11× (Collected at the beginning of each professional development session)	October – December 2016
Adherence – Professional development curriculum	Researcher	Professional development curriculum – lesson plans, PowerPoints, videotapes	11× (Collected at the end of each professional development session)	October – December 2016
Participant Responsiveness – Teacher engagement in professional development sessions	Researcher	Excel spreadsheet with observations and field notes of participant engagement	11× (Collected at the end of each professional development session)	October – December 2016
Program Differentiation – Control vs. intervention group	Teacher participants (control group)	Interview questions	1× (Collected during interviews of participants in control group)	January 2017

Attendance at professional development sessions. Teacher attendance at professional development sessions was crucial to maintain high fidelity. Previous researchers, designing SRL professional development models for practicing teachers

within the same academic school year, provided between 10 and 16 hours of professional development (Kramarski & Revach, 2009; Perels et al., 2009). Thus, it was predicted that 10 hours of professional development, over the course of three months, would produce a change in teacher practice of SRL strategies in the classroom, the intended outcome. Therefore, data collection about teacher attendance for the scheduled 11 sessions was crucial in evaluating teacher participants' exposure to the recommended dose of professional development. Teacher attendance data were collected in an Excel spreadsheet. Each row of the spreadsheet was labeled with teacher participants' pseudonyms and each column was labeled with the date of the session and the main learning outcome for the session (e.g., planning stage). Each session was also videotaped and shared with any teacher who missed a session.

Teacher participation in professional development sessions. Although teacher attendance data were collected as a measurement of dosage, teachers' participation in the professional development sessions was an important indicator for assessing participant responsiveness during the intervention. Following each session, the researcher recorded qualitative field notes on teacher participants' engagement and involvement in the previously mentioned Excel spreadsheet. These notes were based on researchers' observations of teachers during the professional development session and upon review of each videotaped session. To classify teachers as actively engaged in the professional development sessions, the researcher looked for elements of the following criteria: involvement in all activities and discussions, comments made to the whole group and/or feedback to peers on how to support students as self-regulated learners in the classroom, and completion of reflection question at the end of each session.

Adherence to professional development curriculum. Due to the dual role of the designer/researcher as professional development facilitator, adherence to the professional development curriculum was predicted to be high, yet there may be variables (e.g., time, participant discussion, technology/internet issues) outside of the facilitator's control that affected adherence to curriculum. Thus, adherence to professional development curriculum data were collected by the faciliator on each session's lesson plan. The researcher noted any learning objectives and/or topics not covered in the session, as well as an explanation on why these learning objectives and/or topics were not covered. The researcher recorded this information at the end of each session while teachers were responding to the reflection prompts.

Control group exposure to professional development curriculum. In an effort to study the efficacy of the intervention, per the theory of treatment, it was vital to understand if any teachers in the control group received any dose of treatment. Because the intervention group consisted of teachers from varying content areas, the potential for knowledge sharing among department members posed an increased risk to the fidelity of implementation. Thus, during interviews of each teacher participant in the control group, the researcher asked two yes/no questions. These questions asked control group participants if they engaged in any discussions with members of the intervention group about the professional development curriculum and/or received any materials or curricular resources. If participants answered yes, then the researcher would follow-up with questions about the nature of these discussions.

Proximal Outcomes of Intervention

Each member of the treatment group was matched with a member of the control group based on covariates (Henry, 2010). Due to the population of varying content area high school teachers, the matching variables of interest were years of teaching experience and teacher content area expertise (see Table 4.6 for proximal outcome data collection matrix). Although matching designs pose a threat for "unobserved differences in the treated and untreated groups" (Henry, 2010, p. 138), these teacher demographic variables served as observable controls for evaluating the treatment effect. Following matching, teachers were randomly assigned to the treatment or control condition based on a 1:1 allocation for power analyses (Torgerson, Torgerson, & Taylor, 2010). The treatment program focused on increasing teacher knowledge of SRL, which functioned as the mediating variable. Within the month prior to introduction of treatment and in the month following treatment, 11 professional development sessions, the researcher conducted classroom observations of the dependent variable, teacher practice of SRL strategies, per Spruce and Bol's (2015) SRL observation instrument.

Table 4.6

Proximal Outcome Data Collection

Indicator	Role of Indicator	Data Source	Frequency	Timeline
Teacher Practice of SRL Strategies	Outcome Variable	Spruce and Bol's (2015) SRL observation instrument	2× per teacher participant in professional development and control cohorts (Collected as baseline and posttest classroom observations)	Baseline: September 2016 Posttest: December 2016/ January 2017
Teacher Knowledge of SRL	Mediating Variable	Spruce and Bol's (2015) adapted interview prompts	11× per teacher participant in professional development cohort (Collected at the end of each session)	October – December 2016
Years of Teaching Experience	Control Variable	Demographic data sheet	1× per teacher participant in intervention and control cohorts (Collected prior to study enrollment)	August 2016
Teacher Content Area Expertise	Control Variable	Demographic data sheet	1× per teacher participant in intervention and control cohorts (Collected prior to study enrollment)	August 2016

Classroom observations. In September 2016, pretest classroom observations, utilizing Spruce and Bol's (2015) SRL observation tool, were conducted of teacher participants. In an attempt to decrease observer bias (Henry, 2010; Shadish, Cook, & Campbell, 2002), the researcher remained blinded to group assignment until all pretest observations were completed. In January 2017, posttest classroom observations and in-person interviews were conducted of teacher participants. Edna, a teacher participant in the intervention group, did not undergo a posttest classroom observation due to medical reasons. For each observation, teachers self-selected their observation date and class period within a two-week scheduling window provided by the researcher. Because Little Flower Academy's schedule is hybrid (consisting of 50 minute and 90 minute classes), all observations were conducted during 50 minute classes.

Teachers were also prompted to select the same class period for each observation. Three teachers in the study, one in the intervention group, Isabella, and two in the control group, Thomas and Madalyn, only taught semester long classes. In order to mitigate any extraneous variables, Thomas and Madalyn's posttest observations occurred in December 2016, prior to the end of their semester class. Due to the school break schedule and professional development timeline, Isabella's posttest observation had to occur in January 2017 with a different course and section of students. Because teachers at Little Flower Academy have not been formally observed by an administrator or colleague in the past four academic years and thus, there may be some unanticipated anxiety with being observed, the researcher decided to audio record (instead of video record) all observations. For each audio recorded classroom observation, the researcher also recorded handwritten field notes during the observation. Of note, Ingrid taught her classes

solely in the target language. Thus, both of her classroom observations were transcribed by an outside, fluent Spanish speaker.

Reflection prompts. Professional development sessions occurred during the months of October, November, and December. Following each session, teachers in the intervention group completed a reflection prompt via SurveyMonkey (see Appendix F for a list of the reflection questions). Time was provided at the end of each session for teachers to individually respond to the reflection prompt. Teachers' responses were exported from SurveyMonkey and uploaded to Dedoose software for coding and analysis (Dedoose Version 7.6.6, 2017).

Interviews. Following the posttest classroom observations by the researcher, interviews were conducted with each teacher participant in January 2017 using a protocol that included five questions for teachers in the intervention group and four questions for teachers in the control group (see Appendix G for a list of the interview questions). Edna's interview occurred in March 2017 due to medical reasons, as stated earlier. Each interview was conducted in person, in the teacher's classroom. Interviews with teachers in the control group lasted approximately five minutes. Interviews with teachers in the intervention group lasted approximately 10-15 minutes. Interviews were audio recorded, transcribed, and uploaded to Dedoose software for coding and analysis (Dedoose Version 7.6.6, 2017).

Strengths and Limitations of Design

The evaluation design posed the following limitations: (1) mono-method bias and (2) reactivity to the experimental situation. The mono-method used to evaluate teacher practice of SRL strategies in the classroom was observation via Spruce and Bol's (2015)

tool. The mono-method posed a threat to construct validity (Shadish et al., 2002) because teachers may or may not exhibit the outcome of interest during the specified classroom observation time. In an attempt to mitigate this threat, teachers selected an observation date during a specified timeframe.

Due to the dual role of researcher and professional development faciliator, teacher participants may have exhibited behaviors and practices of SRL strategies simply because of the researcher's presence in their classroom or their role in the intervention group (Shadish et al., 2002). In an attempt to mitigate this threat, the observation tool, which listed 18 observable behaviors (Spruce & Bol, 2015), and pretest results were not shared with participants during the study. Ideally, this approach decreased participants' ability to purposefully adjust behavior based on outcomes of interest.

The construct of SRL is multidimensional. Although a mono-method was employed, Spruce and Bol's (2015) observation tool reflects the outcome's multidimensionality (Rossi et al., 2004) by listing 18 observable behaviors and varying scales of teacher application for each behavior. Observation data provided average scores on teacher practice of overall SRL strategies in the classroom, as well as average scores for each set of behaviors (e.g., planning, monitoring, evaluating). To ensure reliable data collection and to account for experimenter expectancies (Shadish et al., 2002), all classroom observations were audiotaped. Because this study did not involve a team of researchers, it was not feasible for co-observations to occur.

A randomized control study was considered, but ruled out due to the study's focus on teacher practice of SRL strategies among varying content areas. In other words, the element of chance in a randomized control study could have potentially contributed to a

non-representative sample of the target population. In result, the proposed study design offered the following benefits. The matching procedure minimized the difference between treatment and control on the variables of most interest, content area and years of experience. Pre- and posttest classroom observation data collection of the intended outcome provided information on the outcome change (Rossi et al., 2004). Further, the addition of a control group provided information on the program effect on the outcome change (Henry, 2010). Lastly, although the quasi-experimental matching design introduced potential selection bias and limited generalizability to a different context or population (Henry, 2010; Shadish et al., 2002), the design approach best fit the interest of stakeholders (Rossi et al., 2004).

Data Analysis

The primary hypothesis guiding this study's design and data collection processes was the following: there will be significant differences in teachers' implementation of instruction to promote students' use of SRL strategies in the classroom between teachers in the intervention group and teachers in the control group. The following section will discuss the process of data analysis, specifically statistical tests for quantitative data and coding for qualitative data.

Quantitative Data Analysis

For the quantitative pretest and posttest observation data, descriptive statistics and inferential statistical analyses were conducted for teachers in the intervention group and control group. To account for all variance (i.e., reduce the risk of Type I and II errors) and provide a more accurate view of the treatment effect on the outcomes of interest, a multivariate analysis of covariance (MANCOVA) was conducted for research questions

one, two, and three. In the MANCOVA, posttest scores on each subscale (planning, monitoring, evaluating) of Spruce and Bol's (2015) SRL observation tool functioned as the dependent variables, group assignment (i.e., control or intervention) functioned as the independent variable, and pretest scores on each subscale functioned as the covariates. For research question four, a linear regression was conducted to determine if teachers' group assignment (i.e., control group or intervention group) predicted teachers' implementation of instruction to promote students' use of SRL strategies in the classroom.

According to Spruce and Bol's (2015) observation tool, each observable SRL teacher behavior was recorded on a scale from zero to four. A rationale was also provided for each score to further validate the behavior's varying level of presence (see Appendix H for samples of observation score coding). Spruce and Bol (2015) classified these teacher behaviors as either a high level of adoption (overall mean score between three and four), a medium level of adoption (overall mean score between two and three), or a low level of adoption (overall mean score between zero to two). Therefore, for each observation, teacher participants were classified as low, medium, or high in their implementation of strategies to support students in learning how to self-regulate.

Qualitative Data Analysis

Qualitative data consisted of professional development reflection responses, classroom observation field notes, and interview responses. All interview transcripts and SurveyMonkey data were uploaded to Dedoose for coding. A priori codes were developed based on Zimmerman's (2002) model of SRL (see Appendix I for a list of a priori codes). These codes served as the initial deductive approach and first cycle coding

method (Saldaña, 2016). Following the deductive approach, an inductive approach was utilized in which emergent codes were used to identify practices and strategies that teachers share for supporting students' self-regulatory learning in the classroom. These emergent codes served as the second cycle coding method (Saldaña, 2016). Saldaña (2016) asserts that "a theme can be an outcome of coding, categorization, or analytical reflection, but it is not something that is, in itself, coded" (p. 15). Therefore, overall themes emerged based on the categorization of different codes.

Summary

This chapter outlined the mixed methods study design involving collection and analysis of quantitative and qualitative data, as well as implementation of a professional development program. The professional development program, administered to all teachers in the intervention group, was developed based on Chapter 2's needs assessment and Chapter 3's literature review of possible interventions. The four research questions, guiding this study, were focused on teacher implementation of strategies to support students in learning how to self-regulate. Chapter 5 will discuss key findings based on each of these research questions.

CHAPTER 5: FINDINGS AND DISCUSSION

The purpose of this study was to increase teacher practice of implementing instruction to develop students' SRL strategies. In this chapter, quantitative and qualitative findings will be presented to respond to each research question. The chapter will conclude with a discussion on how these findings relate to the theoretical and conceptual frameworks, as well as identify the limitations of the study. Participants' reactions to and reflections on the professional development experience will also be shared in order to chronicle the process of implementation. For documentation of qualitative findings, the following codes listed in parentheses will be used throughout this chapter to classify the different types of qualitative data: participants' interview responses (I), participants' professional development reflection question responses (R), researcher's field notes from professional development sessions (F), and teachers' verbal comments during classroom observations (O). To easily differentiate between group assignment in interview excerpts, teachers in the intervention group were assigned a pseudonym that begins with a vowel, whereas teachers in the control group were assigned a pseudonym that begins with a consonant.

Process of Implementation: Professional Development

The nine teacher participants assigned to the intervention group participated in 11 professional development sessions during the months of October, November, and December 2016. As noted in Table 4.4, these sessions ranged from 45 to 60 minutes and focused on the following components: (a) building teacher awareness of the value of student SRL, (b) increasing knowledge of the research-informed cycle of SRL, and (c) implementing effective strategies for classroom lessons that develop high school

students' SRL strategies. Following each professional development session, teacher participants completed a reflection question adapted from Spruce and Bol's (2015) interview prompts. Upon conclusion of the professional development program, participants were interviewed about their professional development experiences and their implementation of practices to support their students as self-regulated learners. Both, the reflection questions and interviews, were implemented to understand if the above stated professional development objectives were met and to provide further insight on the findings for each research question.

Before answering the research questions, this section will document the process of implementing the professional development program at Little Flower Academy. The researcher's field notes, teachers' reflection prompt responses, and excerpts from teachers' interviews will be shared to highlight how each component of professional development was met, as well as to share teachers' overall perspectives on the value of the professional development program.

Awareness of SRL

Professional development sessions one and two focused on fostering an awareness of SRL among the teacher participants for themselves as learners and for their students. This awareness stemmed from the need to build an understanding of themselves as learners, before they could develop those skills in their students. In the first session's reflection prompt, each participant reflected upon their own SRL habits and practices. In thinking about themselves as learners, participants shared how they used prior knowledge (n = 6, 67%), resources (n = 4, 44%), and positive self-talk (n = 3, 33%) to help them solve complex tasks. These self-regulatory strategies and behavioral mindsets were

essential to accomplishing personal learning goals (Zimmerman, 2002). Otto noted how, when facing a complex task, he focuses on what he knows and what he does not know (R, September 2016). Ingrid reflected on how she tends "to look at the task in pieces instead of as a whole" (R, September 2016). Kramarski and Michalsky (2009) and Perels et al. (2009) noted how it is important for teachers to embody SRL processes in order to model and foster these same behaviors in their students.

After reflecting upon their own SRL processes, teacher participants reflected on how to best support students as self-regulated learners in the classroom. In thinking about their students as self-regulated learners, participants shared the importance of providing students with choice (n = 3, 33%) and control over their learning (n = 5, 56%). Following the second professional development session one participant, Alicia, described what SRL would like for her students as:

> Being aware of [their] own learning style, taking responsibility for learning and applying what [they] learned, and finally thinking about how effectively [they] learned and applied what [they] learned. Was the end result what [they] had hoped for? What changes could be made to improve how [they] learn? (R, September 2016)

Yet, in participants' reflections and interview responses, the tension in finding an appropriate balance between teacher control and student control was present. Most participants (67%) remarked how the professional development helped them in understanding the key linkage between student centered learning and SRL, as well as the need for a shift in practice. Ainsley declared,

> It [professional development] allowed me to be more aware of my student as a self-guided learner and it helped move me from the direction of teacher-directed to becoming more student-oriented and I think sometimes that can be difficult. I have been teaching for 25 years – we get in our own ways – and with the direction of education that is being changing, it allowed me to put the student more into the 'let me also take direction of my learning.' (I, January 2017)

Otto succinctly summed up the purpose of the first component of the professional development: providing participants with an awareness of the value of SRL. He said that the professional development "makes me more aware of getting them – students – to SRL and that takes me being more aware of … the skills I want them to practice and what it would look like when they are practicing SRL" (I, January 2017). As detailed in Chapter 3's theoretical framework on teacher change, the first essential component of professional development was fostering teachers' awareness-knowledge (Rogers, 2003) of SRL. This awareness-knowledge creates a sense of buy-in that promotes teachers' change in practice, understanding why it is essential to support students as self-regulated learners in the classroom.

SRL Cycle

In professional development sessions three through five, participants were introduced to each phase of the SRL cycle: forethought/planning, performance/monitoring, and self-reflection/evaluating (Zimmerman, 2002). Participants were prompted to think about how they could support students in each of these phases through the use of specific strategies in the classroom. Each session's activity focused on specific instructional strategies, such as goal setting, visual learning tools, cooperative

note-taking pairs, reflection questions, and checklists (Nilson, 2013), that could be used to support students in developing SRL practices.

Following session three's focus on the forethought/planning phase of SRL, participants reflected upon the importance of goal setting (n = 5, 55%), "big picture" ideas (n = 3, 33%), and timelines for personal accountability or "chunking" larger tasks into actionable components (n = 4, 44%) in helping their students to plan for accomplishing a learning task. Edna highlighted the value of student ownership in planning for a learning task:

> [I would ask] them [students] to identify what they already know and what they would like to learn from the task. I would also ask them to identify what their learning strengths are and where they may find support for any areas of weakness. I would ask them to develop a time line if there are multiple steps in the task and make sure that they have a clear understanding of the identified goal(s). (R, October 2016)

Edna pointed out how she plans on empowering her students to understand how they will accomplish their goals, prior to engaging in the learning task. As Zimmerman (2002) noted, for teachers to effectively support students as self-regulators, it is essential for students to understand themselves as learners. Although teachers may guide students towards this self-awareness, students must take ownership for their learning in order to enhance their self-regulatory efficacy (Zimmerman, 2002).

The student scenarios activity in session four, focused on the performance/monitoring phase, and appeared to really resonate with participants:

> Each small group decided to work collaboratively to align strategies with student scenarios. They looked up each strategy in the book [Nilson's (2013) book: *Creating Self-Regulated Learners: Strategies to Strengthen Students' Self-Awareness and Learning Skills*] and then came to a collective decision about why that strategy or strategies fit that particular student. One group [Edna, Emma, Ingrid, and Otto] even mentioned that ALL of these strategies would work for ALL students. The other group [Adrian, Alicia, Estelle, and Isabella] started talking about their own students. (F, November 2016)

As documented in Chapter 2's needs assessment results, students at Little Flower Academy responded with large variability (*SD* = 1.20, 1.08, respectively) to items one and three of Cleary's (2006) adapted SRSI. Item one asked students if they "reflect on [their] progress and adjust [their] performance" in their classes at Little Flower Academy, whereas item three asked students if they "know which strategies are best for approaching varying tasks." Both of these survey items addressed students' use of self-regulatory strategies, particularly during the monitoring phase of SRL. Thus, as evidenced in the researcher's field notes, prior to the student scenario activity during session four of the professional development programming, teachers at Little Flower Academy may not have recognized how implementation of instruction to support students in monitoring their learning can benefit all students (Nilson, 2013).

Further, even though the student scenarios were hypothetical, participants started sharing more openly about their practice and how they could improve it. Isabella candidly shared her struggles with assisting students in monitoring their learning: "I am still struggling to find a way to encourage them to take what they are learning … and make it

their own ... I know I can do better, I know they can do better" (R, November 2016). Other participants reflected upon their responsibility as a teacher to use a variety of instructional strategies (n = 3, 33%), as well as encourage students to log and journal about how they are progressing in their learning (n = 5, 56%). Emma shared a rationale for why students should make their learning process more visible:

> Students [should] write down what strategies are working for them when they are completing a task, and what things might be 'getting in their way' or distracting them from learning. That way, students have documentation of reflecting on their own learning and become aware of what helps and hinders their learning. (R, November 2016)

As Zimmerman (2002) discussed in his overview of SRL, student self-recording (e.g., writing down strategies as Emma mentions above) is an essential component to the performance/monitoring phase. When students' self-record their learning, they participate in self-observation behaviors, which ultimately makes them more cognitively aware of their own learning (Zimmerman, 2002). This awareness can then prompt continuation or thwarting of certain SRL behaviors and strategies.

Session five focused on the self-reflection/evaluating phase of SRL. Participants watched videos of "teachers in practice" utilizing strategies to support their students in self-evaluating and reflecting on their learning. In follow-up interviews, both Adrian and Alicia mentioned that they frequently use strategies that they observed in these videos. Based on the reflection prompt, participants shared a variety of strategies that they would implement to encourage student reflection and evaluation following a learning task. The most commonly mentioned strategies were checklists (n = 4, 44%) and reflection/self-

evaluation questions (n = 4, 44%). Both of these strategies were presented in session five of the professional development program. Overall, these sessions provided participants with how-to knowledge (Rogers, 2003) for implementing strategies that support self-regulated learners in the classroom. As Rogers (2003) discussed in his diffusion of innovation principles, how-to knowledge is crucial in not only supporting teachers to adopt new strategies or practices in the classroom, but also in decreasing uncertainty that is oftentimes associated with changes in practices or behaviors.

Strategies for Classroom Implementation

Sessions six through 11 of the professional development program provided opportunities for participants to experiment with strategies to support their students as self-regulated learners. All participants engaged in two PDSA cycles – an integral piece to the third component of the professional development program. Some participants tried out a new strategy each cycle, while others tried out the same strategy under different conditions (e.g., different sections of students and different content levels). Participants' selection of strategies ranged from student goal setting to cooperative note-taking pairs to self-reflection questions. Edna shared how the hands-on opportunities allowed her to "apply the strategies throughout the process, rather than wait until the professional development was over to implement strategies" (I, March 2017). Thus, as Bryk et al. (2015) asserted, implementation of these PDSA cycles empowered teachers to become inquirers of their own practice by focusing on the process of learning and adapting based on feedback – a critical component for teacher change, which may be missing in outside professional development opportunities.

Professional development field notes following the first PDSA cycle indicated that participants "offered tangible ideas and action steps for subsequent implementation" to each other (F, November 2016). Most participants also brought in student artifacts to share with their colleagues. Despite the limited timeframe (one week) to implement the change in practice for the second PDSA cycle, participants were very excited to observe each other implementing SRL strategies in the classroom. Participants adjusted their teaching schedules to fit in these observations. Teachers in the intervention group shared a lot of reflections on the value of these peer observations and opportunities for feedback, most likely because it has been years since they have been observed by peers or administrators. Adrian commented on the value of feedback during PDSA cycles: "I liked coming back together, hearing what other teachers did, giving input, getting input on my own and then doing the cycle over because it helps you to put the whole thing in perspective and see what works for you and what doesn't" (I, January 2017). The PDSA cycles offered participants with opportunities to apply the knowledge they gained in the professional development sessions. Estelle said,

> The PDSA cycle forces me to think a little deeper in the way I teach. The steps are new to me and I like the new way of thinking in the cycle. I like how not only does it ask the instructor if they think the plan will have success but what type of data will be used. I don't believe that I generally ask 'will it work'? (R, November 2016).

Further, the PDSA cycles offered a forum for participants to individualize this knowledge into strategies that fit their students, teaching style, and classroom environments. Four participants remarked how student engagement and results were key to determining if a

change in practice worked. Alicia mentioned, “For the first PDSA cycle, I asked the students for their opinion. It was very useful. Based on their comments I will continue to use the strategy of a clicker system for review prior to a summative assessment” (R, December 2016). Ingrid also asked her students for feedback on the PDSA cycle lesson. She remarked how this student feedback helped her grow as an educator by understanding which strategies supported her students as self-regulated learners and why some strategies worked better for them than others (R, December 2016).

By sharing their successes and obstacles in implementing these changes in practice, participants were able to form a community of learners. Ingrid said,

> It [professional development] allowed me to verbalize things that worked and things that didn’t work and do it in a setting that was very supportive with the people that I was in it with. And for me to be able to bounce ideas off of other colleagues and then vice versa I was able to really kind of be honest about my teaching practices and what works for my students and what works for me and I was able to take so many things back and use it in the classroom. (I, January 2017)

Ainsley also noted how this collaboration was “an important piece of professionalism – being able to share our lessons – what we know, what we’ve learned, where we are going, what works, what doesn’t work” (I, January 2017). Estelle even described how, by implementing these changes in practice, she “sees a change in the kids’ attitudes… they seem more excited and they are having more fun” (I, January 2017). Overall, participants valued the opportunity to not only collaborate with their professional colleagues, but also to learn and grow from their peers’ feedback.

Participants' Overall Perspectives

As mentioned in Chapter 4, teachers at Little Flower Academy were not offered in-house professional development during the 2015-2016 or 2016-2017 academic years (besides this research study); they were encouraged to seek outside professional growth opportunities such as one to two day conferences or workshops. Therefore, this professional development programming was participants' first exposure to an in-house, ongoing, collaborative professional experience.

Most teacher participants (n = 8, 89%) commented on how the in-house professional development offered a unique opportunity for them to collaborate with their colleagues. Ingrid remarked, "I got to collaborate with colleagues here, which is kind of like putting the things we do in context" (I, January 2017). Estelle and Edna both noted how they enjoyed the cross-curricular collaboration because they rarely have opportunities to observe and collaborate with teachers in other disciplines. They also voiced an interest in continuing to observe and be observed by their colleagues. Isabella, a veteran teacher, commented on how she wishes that this collaboration extended beyond the professional development program when she stated:

> I loved it [the professional development] because I have always had somebody across the hall or next to me who I can just bounce ideas – especially being teaching for so long. And then, it's good just to talk to somebody so at the professional development when we were in there just even – hey, what would you do here? And getting ideas from other people was just so wonderful. And now, even trying to plan a class, I am like oh – I wish I had somebody to bounce this off of. (I, January 2017)

Four teachers also characterized the effectiveness of the professional development in terms of relevancy to their teaching practice and value of their time. Otto described how the "level of professional development was meaningful, productive, engaging and interesting … different from most other times … It was worth my time" (I, January 2017). Ingrid remarked,

> A lot of times it's hard to make a connection between what you learn at a PD – if it's at a conference outside of your school – and here it was nice to be able to collaborate with people that I work with daily so it was more relevant to me. (I, January 2017)

Participants' reactions to the professional development program denote the unfortunate disparities between "fragmented, intellectually superficial" professional development learning opportunities offered to teachers compared to professional development that "take[s] into account what we know about how teachers learn" (Borko, 2004, p. 3). Participants' reflections on the professional development programming also allude to the isolating nature of teaching and thus, the value of ongoing peer collaboration and feedback. As noted in Chapter 3's discussion on effective professional development, collective participation of teachers in the same school may create a shared knowledge base (Cochran-Smith & Lytle, 1993), which can support teachers in supporting students as self-regulated learners beyond the duration of the professional development program.

Participant Attendance and Participation

There was no attrition during the professional development program. As mentioned in Chapter 4, three sessions had to occur outside of school hours. Thus, some participants (n = 5, 56%) did miss a session or two due to illness or other commitments

(see Table 5.1 for participant attendance in professional development program). These participants were provided a video recording of the session, as well as any materials used in the session. All participants, who missed a session, confirmed via email that they watched the video recording and completed the activities. They were also encouraged to discuss any thoughts about the session's content with their colleagues or myself.

Table 5.1

Participant Attendance in Professional Development Program

Pseudonym	In-Person Session Attendance (out of 11)	Sessions Completed via Video Recording
Adrian	10	Session 7
Ainsley	9	Sessions 4, 5
Alicia	11	N/A
Edna	10	Session 8
Emma	11	N/A
Estelle	11	N/A
Ingrid	10	Session 3
Isabella	10	Session 1
Otto	11	N/A

Based on the researcher's field notes, all participants actively participated in each session. Active participation was defined as verbal contributions in the large and small group discussions, engagement in all activities during and in between sessions, and questioning and/or offering advice to colleagues about how to implement SRL strategies in the classroom. The researcher's field notes provided insight on how participants' thinking changed throughout the professional development programming. At the end of the very first session, "participants were eager to know HOW to support SRL in the classroom" (F, October 2016). By the middle (session 5) of the professional development programming, the researcher noted that "participants were very honest and open about how their thinking on their teaching practice is changing" (F, November 2016). In the last

session of the professional development programming, the researcher's field notes indicated,

> Participants discussed barriers that we face as a school in supporting our students as self-regulated learners. Yet, they also voiced how they valued the opportunity to take the time to reflect on their practice and to implement specific changes in practice. Multiple participants shared how they wished they had more opportunities for professional growth. (F, December 2016)

As documented in the researchers' field notes, teachers at Little Flower Academy valued this professional development opportunity as it prompted them to reflect on their practice and implement necessary changes. Yet, these field notes also illuminated how a more sustained professional development program (i.e., longer than three months) may result in continued long-term changes in teacher practice and/or more sustained shifts in teachers' curriculum and assessment development in order to align with supporting students as self-regulated learners in the classroom.

Research Question Findings

The following section will present the quantitative and qualitative findings for each research question. As detailed in Chapter 4, the following research questions guided the data analysis process:

RQ1: To what extent did professional development on SRL increase teacher presentation of forethought and planning strategies in the classroom?

RQ2: To what extent did professional development on SRL increase teacher presentation of performance and monitoring strategies in the classroom?

RQ3: To what extent did professional development on SRL increase teacher presentation of self-reflection and evaluation strategies in the classroom?

RQ4: To what extent did professional development on SRL increase the effectiveness of teachers' presentation of self-regulation teaching strategies?

Forethought and Planning Strategies

Research question one focused on teacher practice of implementing instruction using forethought and planning strategies with students. Spruce and Bol's (2015) SRL observation instrument was utilized to evaluate teacher implementation of instruction to develop students' forethought/planning strategy use. The observation instrument included three subscales (i.e., planning, monitoring, and evaluating). The planning subscale consisted of six items, each item received a score ranging from zero to four; these scores were then averaged to calculate teachers' planning subscale mean scores. In the pretest classroom observations, mean scores ranged from 0.83 to 3.17 (M = 1.61, SD = 0.68) for teachers in the intervention group and from 1.00 to 2.33 (M = 1.67, SD = 0.50) for teachers in the control group. In the posttest classroom observations, mean scores ranged from 1.83 to 4.00 (M = 2.69, SD = 0.84) for teachers in the intervention group and from 0.83 to 2.50 (M = 1.59, SD = 0.49) for teachers in the control group (see Table 5.2 for descriptive statistics).

Table 5.2

Descriptive Statistics for Observation Scores – Planning

	Intervention Group				Control Group			
	Pretest (n = 9)		Posttest (n = 8)		Pretest (n = 9)		Posttest (n = 9)	
Planning Subscale Items	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
1. setting task goals	2.22	1.39	2.25	1.17	1.56	1.51	1.56	1.13
2. seeking information and strategies needed	1.33	1.66	4.00	0.00	2.00	1.67	2.22	1.86
3. setting time and resource allotment	1.67	1.58	2.50	1.51	1.89	1.27	1.11	1.27
4. self-instruction	1.11	0.93	3.25	1.04	1.56	1.13	1.67	1.66
5. attention focusing	2.44	1.42	1.75	1.75	1.78	1.86	2.22	1.64
6. self-recording	0.89	1.54	2.38	1.69	1.22	1.86	0.78	1.30

Planning Subscale Mean	1.61	0.68	2.69	0.84	1.67	0.50	1.59	0.49

A one-way MANCOVA was conducted to determine if participation in professional development had an impact on teachers' implementation of planning, monitoring, and evaluating strategies in the classroom while controlling for pretest observation scores. There was not a significant multivariate main effect for group assignment (i.e., intervention or control), Wilks' $\lambda = .618$, $p = .169$. Because of the small sample size, the univariate main effects were also examined. Significant univariate main effects for group assignment were obtained for the post-planning observation scores [$F(1,12) = 6.089$, $p = .030$] (see Table 5.3).

Table 5.3

MANCOVA Results for Observation Scores Based on Group Assignment

	Intervention Group ($n = 8$)		Control Group ($n = 9$)		MANCOVA	
	M	*SD*	*M*	*SD*	*F*	*P*
Planning Subscale	2.69	0.84	1.59	0.49	6.089	.030
Monitoring Subscale	2.84	0.78	2.50	0.63	.703	.418
Evaluating Subscale	1.65	0.73	0.93	0.68	1.988	.184

Spruce and Bol's (2015) observation tool listed six observable teacher behaviors for supporting students in the planning stage of SRL (see Table 5.2). Four of these behaviors, setting task goals, seeking information and strategies needed, setting time and resource allotment, and self-instruction, will be explored further. Self-recording was repeated in both the planning and monitoring subscales of the observation tool and thus, will be discussed in the findings for research question two. The four behaviors mentioned above were selected because they show the most contrast between teachers in the intervention group and teachers in the control group's implementation of instruction to

support students' planning and forethought stage. Each of these behaviors will be discussed in order to understand how teachers in the intervention group conceptualized these behaviors in the classroom, ultimately increasing their planning/forethought strategy use with students.

Setting Task Goals

Goal setting was mentioned by five participants (56%) in their professional development reflection prompts as a key strategy for helping students plan for a learning task. Isabella commented,

> It all goes back to the goal. What is the goal of the task and have they bought into the goal? Do they understand that by completing this task they will benefit from it? If they understand why they are doing what they are doing then it makes the learning so much easier. If the task is hard they might need the encouragement in order to help them break it down so it isn't overwhelming. (R, November 2016)

Alicia discussed the difference between teacher goal setting and student goal setting. She shared,

> I realized that I used to set goals and then I stopped setting goals and that I should do that again. And when I say setting goals, I meant with the students. I had my personal goals, but I didn't do that with the students. (I, January 2017)

In the posttest classroom observations, all teachers in the intervention group set a task goal. Most teachers (n = 5, 63%) in the intervention group also provided a rationale for why students were learning what they were learning and/or how the goal fit into the long-term plan. Yet, only two teachers, Ingrid and Ainsley, involved students in the goal setting process. Ingrid asked her students to set their own goal for creating a public

service announcement (PSA) in the target language and Ainsley prompted students to develop a hypothesis prior to their lab experiment. In comparison, no teachers in the control group involved students in the goal setting process. Further, 44% (n = 4) of the teachers in the control group referenced the goal only once (usually at the beginning of class) during the whole class period.

It is possible that teachers involve students more in the long-term goal setting than the short-term goal setting (i.e., one classroom period). For example, Adrian detailed how he involves students in the long-term goal setting process now:

> My one freshman class – it was actually the one that you observed – I have girls from all ends of the spectrum. Girls that are moving on to honors that are completely bored if I just do the same thing with them and then I have girls that have no idea what's going on unless I sit down and talk them through it. So, like the higher-achieving girls, we started to make goals like okay, you want to go into honors next year – you need to know how to have more sophisticated signal phrases. So, I am trying to set different goals where yes it's kind of attached to the grades still, but it's more personal goals too. And then even the lower-achieving students it might be, you know, trying to comprehend on their own or getting through a part of the assignment independently. (I, January 2017)

Although goals set by students lead to higher self-efficacy than goals set by teachers, goal setting in general promotes student engagement in tasks by providing an opportunity for students to evaluate their progress towards achieving the goal (Schunk, 1989).

Seeking Information and Strategies Needed

All observed teachers in the intervention group received the highest score (four) in this category during the posttest observations. In the pretest observations, four of the intervention group teachers received the lowest score (zero) meaning they did not discuss what strategies or information were needed prior to student engagement in the learning task. In comparison, three teachers in the control group received the lowest score (zero) and four teachers in the control group received the highest score (four) in this category during the posttest observations. Following the professional development, all teachers in the intervention group engaged students in a discussion on what strategies they should use and/or what information they needed to successfully complete the task. For example, in a problem-based activity, Alicia asked students the following questions: "What do we know? What do we want to find?" (O, January 2017). By providing a directed activity for students to discuss or plan for information and strategies needed in the learning task, students became involved in the strategic planning process (Spruce & Bol, 2015; Zimmerman, 2002).

Setting Time and Resource Allotment

During the posttest classroom observation, four teachers in the intervention group provided a directed activity for students to assess how to organize their time and how to manage their resources for the task at hand (i.e., scored a three or four in this category). Ainsley, Estelle, Ingrid, and Otto provided students with an instructional guide, which listed the task goal, timeline, and/or rubric. These instructional guides identified the time parameters and expectations for students prior to engagement in a learning task. Further, Adrian, Ingrid, and Otto provided students with opportunities to choose their resources

for the task at hand. For example, Adrian and Otto's students selected which poem they hoped to analyze, whereas Ingrid's students selected which topic they wanted to explore for their PSA creation.

In contrast, only one teacher (Morgan) in the control group provided a directed activity for students in this category (i.e., scored a four). Morgan's students were preparing to create a gesture drawing. She prompted them to select their own partner and use their resources and reference previous students' exemplars to complete the task at hand. Out of the other five teachers in the control group who referenced time and resource management (i.e., scored a one or two), four of these teachers simply did so with an imperative statement. For example, as Sarah's students prepared to embark on group work as they learned new content knowledge in Spanish, she only referenced time and resource allotment by stating, "Pick up file from Nachos [shared drive] – work with group" (O, January 2017). In Madalyn's description of SRL, she shared that "letting them [students] pick the topic allows them to self-regulate" (I, January 2017). However, in both observations, Madalyn did not provide students with choice. Instead, she identified which resources they should use and how much time they were allotted to work on the task at hand. Based on the observation data, clear discrepancies emerged between teachers in the control group (i.e., teacher control in students planning for the task at hand) and teachers in the intervention group (i.e., student voice/input in determining pace and choice for the task at hand).

Self-Instruction

During the posttest classroom observations, all teachers in the intervention group prompted students to self-instruct prior to engaging in the learning task. In contrast, only

six of the teachers (67%) in the control group reminded students or offered opportunities for students to self-instruct prior to the learning task. Following professional development, there was also an observed shift in teachers in the intervention group's promotion of self-instructing techniques for students. For example, in Otto's pretest observation, he simply encouraged students to try out a strategy, whereas in his posttest observation, he provided students with tips on how to present the analysis of their poems and how to use the Internet effectively to conduct their analysis. Each of these strategies voiced by Otto in the posttest classroom observation directly related to the task goal. This transition signified a shift from generality to specificity – challenging students to self-assess prior to engagement in a learning task. Ainsley discussed how she now empowers her students to independently find out necessary information before a lab experiment. She described how she hopes students conceptualize this forethought process as:

> I [student] am reading this lab. I am studying about wave energy; I am studying about photons… I don't know what a photon is. So, [I need] to do that research beforehand. Or, I [teacher] am talking about Planck's constant. I [student] want to know who Planck is, what does he do to the field of science, and he's physics – how does he relate to Chemistry? (I, January 2017)

Quantitative and qualitative findings for research question one revealed that teachers in the intervention group provided more opportunities for students to plan for a learning task than teachers in the control group. In Spruce and Bol's (2015) study of 10 teachers, they noted that, without professional development, the teachers in their study provided very limited opportunities or explicit instruction for students to plan for a learning task. In comparison, teachers in this study, following professional development,

made key processes (e.g., goal setting) more overt for students. They also stressed the importance of student voice and ownership in planning for complex learning tasks. For example, Otto provided exemplars of poem analyses and asked students to dissect these exemplars in order to proactively think about how they wish to approach their poem analysis. As Zimmerman (2002) notes, "contrary to a commonly held belief, SRL is not asocial in nature and origin" (p. 69). Thus, through teacher modeling and directed opportunities for students to strategically plan prior to a learning task, students can develop forethought strategies and behaviors that are essential for fostering SRL.

Performance and Monitoring Strategies

Research question two focused on teacher practice of implementing instruction using performance and monitoring strategies with students. Spruce and Bol's (2015) SRL observation instrument was utilized to evaluate teacher implementation of instruction to develop students' performance/monitoring strategy use. As mentioned in research question one, the observation instrument included three subscales (i.e., planning, monitoring, and evaluating). The monitoring subscale consisted of seven items, each item received a score ranging from zero to four; these scores were then averaged to calculate teachers' monitoring subscale mean scores. In the pretest classroom observations, mean scores ranged from 0.86 to 3.00 ($M = 2.06$, $SD = 0.69$) for teachers in the intervention group and from 0.71 to 3.14 ($M = 2.10$, $SD = 0.80$) for teachers in the control group. In the posttest classroom observations, mean scores ranged from 1.14 to 3.71 ($M = 2.84$, $SD = 0.78$) for teachers in the intervention group and from 1.57 to 3.29 ($M = 2.51$, $SD = 0.63$) for teachers in the control group (see Table 5.4 for descriptive statistics). As mentioned in the results for research question one, a one-way MANCOVA was

conducted for each subscale of Spruce and Bol's (2015) SRL observation tool (i.e., planning, monitoring, and evaluating). No significant univariate main effects for group assignment were obtained for the post-monitoring observation scores [$F(1,12) = .703$, $p = .418$] (see Table 5.3).

Table 5.4 *Descriptive Statistics for Observation Scores – Monitoring*

	Intervention Group				Control Group			
	Pretest ($n = 9$)		Posttest ($n = 8$)		Pretest ($n = 9$)		Posttest ($n = 9$)	
Monitoring Subscale Items	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
7. clarifying understanding of task/content	3.00	1.32	3.75	.71	3.33	1.11	4.00	0.00
8. evaluation of progress towards goals	2.33	1.50	2.88	1.81	1.78	1.56	2.78	1.86
9. self-instruction	1.78	1.39	2.88	1.13	2.22	1.20	2.44	1.13
10. attention focusing	2.11	1.54	2.88	1.46	1.56	1.51	1.89	1.69
11. self-recording	2.11	1.83	2.88	1.81	3.11	1.54	2.78	1.64
12. use of specific task strategies	1.33	1.58	2.25	1.49	0.89	1.27	1.78	1.72
13. assessment of task – understanding	1.78	1.56	2.38	1.85	1.78	1.72	1.89	2.03
Monitoring Subscale Mean	2.06	0.69	2.84	0.78	2.10	0.80	2.51	0.63

Spruce and Bol's (2015) observation tool listed seven observable teacher behaviors for supporting students in the monitoring stage of SRL (see Table 5.4). Out of each sub-phase (planning, monitoring, and evaluating) of SRL on Spruce and Bol's tool, the monitoring phase received the highest mean scores in the control and intervention groups at both pre- and posttest. Three of these behaviors listed on Spruce and Bol's tool, clarifying understanding of task/content, self-recording, and assessment of task understanding, will be further explored. Clarifying understanding of task/content was selected because it is the only item on the monitoring subscale in which teachers in the control group scored higher ($M = 4.00$) than teachers in the intervention group ($M = 3.75$). Self-recording was selected because although teachers in both the control group

and intervention group had similar average scores (M = 2.78 and 2.88, respectively), their approaches differed. Assessment of task understanding was selected because out of all of the monitoring subscale items, the largest difference occurred between teachers in the intervention group (M = 2.38) and teachers in the control group (M = 1.89). Each of these student self-regulating behaviors will be discussed in order to understand how teachers in the intervention group conceptualized these behaviors in the classroom, ultimately increasing their monitoring/performance strategy use with students.

Clarifying Understanding of Task/Content

In the posttest classroom observations, most teachers (n = 6, 75%) in the intervention group provided very little direct instruction. Instead, they rotated around the classroom working with students individually or in small groups to complete the task at hand. Thus, the clarifying questions that they posed to students or that students posed to them were personalized. In Adrian's observation, when students voiced struggle in completing the assigned task of analyzing a selected poem, he responded with questions to their questions. For example, "What do you need help with? How does the poem make the reader feel? What words create a soothing tone?" (O, January 2017). In contrast, 33% (n = 3) of the teachers in the control group integrated their monitoring of students' learning via questioning during direct instruction, which could last up to 30 minutes of a 50 minute class period. For example, in Pete and Liam's observations, they would stop randomly during their lecture and ask students questions to gauge comprehension. Although they still scored the highest for this category, because they were providing multiple opportunities for students to clarify their understanding, their questions were directed towards a general audience and thus, not all students would respond.

Emma shared how she continues to use the meta-assignment that she experimented with during her PDSA cycle. A meta-assignment is a content-based assignment that promotes students' metacognition while engaged in a learning task (Nilson, 2013). For mathematics problem-solving, Nilson (2013) recommends using meta-assignments as verbal think-aloud opportunities. For Emma's PDSA cycle meta-assignment, she presented them with a problem that was completely new and then had students guide themselves and their peers in solving the problem based on prior knowledge. She described the value of continuing to use meta-assignments in her mathematics classroom as

> Getting the girls to think about stuff they already learned and how to apply it before I tell them: 'this is it – this is how you make the connection.' They are making the connections more themselves now, rather than me as a teacher doing that for them. (I, January 2017)

Both of the above examples from teachers in the intervention group illustrate how they encouraged students to monitor their own learning. Rather than telling students how to complete the task, teachers guided students through the thinking process. The importance of teachers guiding students through the thinking process links to the theoretical frameworks identified in Chapter 1: social cognitive and sociocultural theories of learning. Both of these perspectives support the role of students as active learners who engage in metacognitive processes and the role of teachers as designing learning environments that model or provide opportunities for students to develop SRL skills (Gee, 2008; Flavell, 1979; Zimmerman, 1990). Ultimately, in order to foster students'

self-regulatory processes, there must be a deliberate focus in the classroom on understanding how learning occurs.

Self-Recording

Out of the six control group teachers who provided opportunities for students to self-record, 67% (n = 4) of these teachers prompted students to self-record via notetaking during direct instruction. In comparison, 50% (n = 4) of teachers in the intervention group created templates for students to use to self-record their thoughts and ideas as they complete the assigned tasks. Ingrid's template guided students in collaboratively discussing their PSA approach and recording their ideas for PSA creation. Adrian's template guided students throughout the essay development process. Ainsley's students recorded all observations from the lab experiment within their lab notebook. Otto's students worked collaboratively on creating Google slides for their poem analysis presentations. Adrian, Ainsley, and Ingrid then used these records to prompt individual, small-group, or whole-class reflective discussions, which will be further explored in the discussion of research question three.

Assessment of Task Understanding

In the pretest classroom observation, teachers in the control group and teachers in the intervention group on average scored the same in this category (M = 1.78). In the posttest classroom observations, teachers in the intervention group scored higher (M = 2.38) than teachers in the control group (M = 1.89). Although these differences are not significant, qualitative data revealed how teachers in the intervention group shifted their approaches in their use of task understanding techniques with students. Estelle will be explored further as an example of this transition from her pre- to posttest classroom observation. In the pretest classroom observation, as students were practicing songs for

their upcoming performance, Estelle simply voiced to students: “practice at home” (O, September 2016). Her verbal cue for them to practice at home was based purely on her individual assessment of their task understanding (i.e., knowledge about how to successfully sing the song). Furthermore, she did not specify to students what aspects of the song they needed to practice at home. In the posttest classroom observation, Estelle asked her choral students to learn conducting skills for different time signatures. Students utilized the internet and other resources to teach themselves conducting skills (an example of self-instruction). Once students felt that they had a grasp of the skill, she asked them to model their newfound knowledge in front of the class. She guided students through this modeling by asking questions, such as “what do we do next?” or “where do we start?” (O, January 2017). Oftentimes, if the student modeling the skill could not answer these questions, Estelle would ask the rest of the class to help guide the student in understanding her gaps in knowledge. This shift in practice may be further understood through the lens of one of Estelle’s reflection prompts. She shared,

> I feel I do a lot of demonstrating techniques to be applied where maybe this should be shared with the students. Many of the students are capable of demonstrating and leading discussions on subjects to be learned. I would like to increase the student participation and leadership in demonstration and discussion. (R, November 2016)

Alicia also utilized this peer collaboration approach to assess task understanding in her posttest classroom observation. She encouraged students to first solve mathematics problems independently and then share their thinking process and answers with peers. Peers then participated in a discussion on how they approached the problem and

ultimately came to the conclusion that they did. In both of these examples, there was a deliberate shift from teachers functioning as the sole assessor of learning to creating a partnership between students and teachers as co-assessors of learning. In contrast, out of the five teachers in the control group who did assess for student understanding of the task, only one teacher (Julie) worked collaboratively with the students to help assess task understanding. The other control group teachers simply asked follow-up questions of students to assess their understanding; the teacher remained the sole assessor of learning and understanding.

Although quantitative findings for research question two did not reveal significant differences in teachers' implementation of instruction to support students' monitoring and performance phase of SRL, qualitative findings revealed that teachers in the intervention group could clearly verbalize why students should monitor their learning progress. For example, in Emma's implementation of meta-assignments in the curriculum, she acknowledged the importance of students making connections between prior knowledge and/or previous skills during problem-solving activities. In the posttest classroom observations, these teachers also incorporated instruction to promote student engagement (e.g., Estelle's implementation of student modeling) and cognitive awareness during learning tasks (e.g., Alicia's use of think-pair-share activities). By incorporating these instructional techniques, students could monitor their own progress towards learning goals and self-assess their use of strategies and techniques to achieve those goals (Zimmerman, 2002).

Self-Reflection and Evaluation Strategies

Research question three focused on teacher practice of implementing instruction using self-reflection and evaluation strategies with students. Spruce and Bol's (2015) SRL observation instrument was utilized to evaluate teacher implementation of instruction to develop students' self-reflection/evaluating strategy use. As mentioned in research questions one and two, the observation instrument included three subscales (i.e., planning, monitoring, and evaluating). The evaluating subscale consisted of five items, each item received a score ranging from zero to four; these scores were then averaged to calculate teachers' evaluating subscale mean scores. In the pretest classroom observations, mean scores ranged from 0.60 to 2.40 (M = 1.40, SD = 0.65) for teachers in the intervention group and from 0.20 to 1.80 (M = 0.84, SD = 0.58) for teachers in the control group. In the posttest classroom observations, mean scores ranged from 0.60 to 2.80 (M = 1.63, SD = 0.75) for teachers in the intervention group and from 0.00 to 2.00 (M = 0.93, SD = 0.68) for teachers in the control group (see Table 5.5 for descriptive statistics). As mentioned in the results for research questions one and two, a one-way MANCOVA was conducted for the evaluating subscale of Spruce and Bol's (2015) SRL observation tool. No significant univariate main effects for group assignment were obtained for the post-evaluating observation scores [$F(1,12) = 1.988$, $p = .184$] (see Table 5.3).

Table 5.5 *Descriptive Statistics for Observation Scores – Evaluating*

	Intervention Group				Control Group			
	Pretest (n = 9)		Posttest (n = 8)		Pretest (n = 9)		Posttest (n = 9)	
Evaluating Subscale Items	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
14. progress towards task goals	3.00	1.00	3.00	1.07	2.11	1.36	2.22	1.79
15. strategy use – those that succeeded and failed	0.89	1.54	1.50	2.07	1.11	1.54	0.00	0.00
16. actions to be repeated or modified for subsequent related tasks (adaption based on performance)	2.00	1.50	1.63	1.41	0.67	1.41	1.67	1.73
17. determining self-satisfaction (based on performance)	0.11	0.33	1.13	1.64	0.00	0.00	0.33	1.00
18. causal attribution	1.00	1.41	0.88	0.99	0.33	0.50	0.44	0.73
Evaluating Subscale Mean	1.40	0.65	1.63	0.75	0.84	0.58	0.93	0.68

Spruce and Bol's (2015) observation tool listed five observable teacher behaviors for supporting students in the evaluating stage of SRL (see Table 5.5). Out of each sub-phase (planning, monitoring, and evaluating) of SRL categorized on Spruce and Bol's tool, the evaluating phase received the lowest mean scores in the control and intervention groups at both pretest and posttest. To understand the variability (SD = 0.75) in evaluating scores among teachers in the intervention group, Estelle and Ingrid's classroom observations will be explored in more detail.

Investigation into Two Intervention Group Teachers

Estelle. Out of the eight intervention group teachers, Estelle experienced the highest increase in scores (Δ = 7 points) from pre- to posttest classroom observation for the evaluating phase. As mentioned earlier, in her posttest classroom observation, her students' goal was to learn basic conducting skills. At the end of this lesson, students independently answered reflection questions. Her reflection questions aligned with

various key components for evaluating learning (Spruce & Bol, 2015): progress towards task goals, strategy use – those that succeeded and failed, and actions to be repeated or modified for subsequent related tasks. In alignment with student reflection on progress towards task goals, she asked the following question: What was the most useful or valuable thing you learned? In alignment with student reflection on strategy use, she asked the following question: What helped you or hindered you in your understanding of conducting techniques? In alignment with student reflection on actions to be repeated or modified, she asked the following question: How can we put into practice what we've learned today? (O, January 2017). After reflecting on these questions, students submitted their responses to Google Classroom. Estelle mentioned to students that she would provide individualized feedback on their reflections after class. She then led the class in a reflective discussion based on the above stated questions.

Her approach in the posttest classroom observation varied widely from her pretest classroom observation. In her pretest observation, she incorporated minimal student discussion on progress towards task goals and no student discussion on strategy use or actions to repeated or modified, observable SRL behaviors on Spruce and Bol's (2015) SRL observation tool. In her reflection prompt following the professional development session on self-reflection/evaluation, she said that she planned on designing student "reflection questions that helped [her] understand what they've learned" (R, November 2016). Estelle also mentioned in her follow-up interview, that she really liked adding the reflection component to the end of each lesson (I, January 2017). Estelle's reflection and interview responses revealed that not only did she deliberately plan on adding opportunities for students to reflect and self-evaluate upon their learning, but she also

found value in providing individualized feedback to students based on their self-assessments.

Ingrid. During her posttest classroom observation, Ingrid scored high ($M = 4.00$) in the planning, medium ($M = 2.57$) in the monitoring, and low ($M = 2.00$) in the evaluating phases of SRL based upon Spruce and Bol's (2015) classifications. In comparison, she scored medium ($M = 2.40$) for the evaluating phase in her pretest classroom observation. As mentioned earlier, in her posttest classroom observation, her students were planning for the creation of PSAs in the target language. Thus, the majority of the classroom time went towards planning the PSA and monitoring student understanding of how to approach this task. At the end of the class period, she did move around during students' brainstorming on PSA creation in order to check students' completed template (as mentioned in research question two) and provided them with feedback, in alignment with Spruce and Bol's (2015) evaluating progress towards task goals. She also gave them general praise, in alignment with Spruce and Bol's (2015) causal attribution, yet she did not engage in any discussion on strategy use or actions to be repeated or modified.

It is possible that these behaviors were not observable due to the following reasons: flexibility in adapting to students' needs and tasks spanning more than one, 50-minute class period. At the end of the class period, she asked students if they needed more time to complete their plans. Students voiced needing more time so Ingrid adjusted their schedule based on this input. This request for student input and voice aligned with one of Ingrid's reflection prompts. In discussing how to support her students as self-regulated learners, she said,

> I would offer opportunities for my students to self-reflect, to verbalize what they are doing that works, and what they are doing that doesn't work. I would offer them opportunities to also verbalize what they know, what they don't know, what concepts/skills are easy for them to understand, and those that they struggle to understand. Allowing for this process to happen would give me the opportunity to implement various strategies into my classroom so that all students feel like their needs are being met. (R, November 2016)

It is also possible that the overall reflection and evaluation of the task (PSA creation) would occur after they shared their PSAs with the class due to the inquiry-based nature of the long-term task. This assumption is also due to observed behaviors in Ingrid's pretest classroom observation. In her pretest classroom observation, students were presenting, in the target language, their research on non-profit organizations in the community. Following each presentation, she led students in a discussion on evaluating their presentation skills. For example, she asked them the following question: "What are some things that we need to improve when we are giving presentations?" (O, September 2016). Students worked on their non-profit organization research and presentations for a week prior to the presentations. Yet, the formalized evaluation of the presentation occurred at the end of this lesson.

Spruce and Bol (2015) noted that most teachers did not engage in the whole SRL cycle in one class period. Adrian's reflection prompt in the professional development on evaluation/self-reflection provided insight into how teachers may conceptualize SRL as a long-term cyclical process, not distinct phases that must occur in one class period. This thinking was evident in Adrian's idea:

> I also have been thinking about having them be more specific in their learning - write on a work document what they want to learn and then highlight it once they've mastered it. Once they've mastered it, write a new goal. On their papers, they can write to me what that goal is, so I can focus on that particular element of feedback. (R, November 2016)

Otto also shared the following idea in the same professional development session: "Give students a list of jargon associated with completing a successful essay. Ask them to identify which item(s) on the list proved difficult in creating a well-written essay. Ask them also to explain (if possible) why they had difficulty" (R, November 2016). In both of these ideas, SRL was conceptualized in terms of a long-term task (e.g., writing an essay) versus learning a new content or skill (e.g., writing topic sentences).

Quantitative findings for research question three did not reveal significant differences in teachers' implementation of instruction to support students' evaluating and self-reflection phase of SRL. Qualitative findings from the professional development reflection prompts and from field notes during the classroom observations revealed that teachers in the intervention group may conceptualize the evaluation and self-reflection component of SRL as a long-term process. As Spruce and Bol (2015) noted in their study, teachers may not conclude each classroom lesson with a self-assessment or reflection component. Rather, they may conceptualize it as a component to the summative learning process – self-evaluating after completing a long-term task goal. Teacher conceptualization of self-evaluation processes for students as short-term versus long-term aims will be discussed as an area of potential future research in the discussion section.

Overall Implementation of SRL Strategies

Research question four focused on teachers' overall practice of implementing instruction using SRL strategies in the classroom. In the pretest classroom observations, mean scores ranged from 1.06 to 2.78 (M = 1.73, SD = 0.53) for teachers in the intervention group and from 0.89 to 2.17 (M = 1.61, SD = 0.46) for teachers in the control group. In the posttest classroom observations, mean scores ranged from 1.06 to 2.11 (M = 1.77, SD = 0.38) for teachers in the intervention group and from 1.22 to 3.22 (M = 2.46, SD = 0.62) for teachers in the control group (see Table 5.6 for descriptive statistics).

Table 5.6 *Descriptive Statistics for Observation Scores – Overall*

	Pretest				Posttest			
Group	*N*	*M*	*SD*	Range	*N*	*M*	*SD*	Range
Control	9	1.61	0.46	0.89 – 2.17	9	1.77	0.38	1.06 – 2.11
Intervention	9	1.73	0.53	1.06 – 2.78	8	2.46	0.62	1.22 – 3.22

A simple linear regression was calculated to predict teacher practice of implementing instruction using SRL strategies with students based on group assignment (i.e., control group or intervention group). Based on the regression equation, ($F(1, 15)$ = 7.933, $p < .013$), with an R^2 of .346, the professional development program had a significant impact on teacher outcomes in the intervention group (see Table 5.7). Of note, because one teacher (Edna) in the intervention group did not have a posttest classroom observation conducted, her match was also lost resulting in the total degrees of freedom (16) evident in Table 5.7.

Table 5.7 *Linear Regression*

Predictor Variable	B	Total R^2	*Df*	*F*	Significance
Group Assignment	1.076	.346	1, 15	7.933	$p < .013$

Teacher Classifications

Teacher participants in the control group (Table 5.8) and intervention group (Table 5.9) were classified as either low (overall mean score between zero and two), medium (overall mean score between two and three), or high (overall mean score between three and four) in their overall practice of implementing instruction using SRL strategies in the classroom. These classifications were based on Spruce and Bol's (2015) recommendations. In the pretest classroom observations of the control group, seven teachers were classified as low and two teachers were classified as medium. In the posttest classroom observations of the control group, six teachers were classified as low and three teachers were classified as medium.

Table 5.8

Control Group – Overall Classroom Observation Scores

Pseudonym	Pretest Mean	Posttest Mean
Carol	2.11 (Medium)	2.00 (Low)
Julie	1.89 (Low)	2.11 (Medium)
Liam	1.17 (Low)	1.06 (Low)
Madalyn	0.89 (Low)	2.06 (Medium)
Morgan	2.17 (Medium)	2.11 (Medium)
Pete	1.94 (Low)	1.72 (Low)
Samuel	1.17 (Low)	1.28 (Low)
Sarah	1.56 (Low)	1.89 (Low)
Thomas	1.56 (Low)	1.67 (Low)

In the pretest classroom observations of the intervention group, seven teachers were classified as low and two teachers were classified as medium (same as control group). In the posttest classroom observations of the intervention group, one teacher was classified as low, six teachers were classified as medium, and one teacher was classified as high. Isabella was the only teacher whose overall mean score decreased following professional development; however, she was also the only teacher who switched courses

and students during the study. Therefore, her posttest observation occurred during the first month of a new semester with a new set of students. She also mentioned, following her interview, that she did not think that the lesson the researcher observed was the best representation of her implementing SRL strategies in the classroom because of the start of the new semester.

Table 5.9

Intervention Group – Overall Classroom Observation Scores

Pseudonym	Pretest Mean	Posttest Mean
Adrian	1.94 (Low)	2.44 (Medium)
Ainsley	2.78 (Medium)	3.22 (High)
Alicia	1.33 (Low)	2.22 (Medium)
Edna	1.17 (Low)	N/A
Emma	1.61 (Low)	2.56 (Medium)
Estelle	1.72 (Low)	2.94 (Medium)
Ingrid	2.17 (Medium)	2.89 (Medium)
Isabella	1.78 (Low)	1.22 (Low)
Otto	1.06 (Low)	2.17 (Medium)

SRL Strategy Use

Spruce and Bol's (2015) observation tool provides a scale from zero (behavior not observed) to four (strong application – more than one opportunity within a directed activity). Thus, teacher reference to student use of a self-regulatory strategy scored lower than a teacher providing an opportunity for students to self-regulate their learning. For example, teachers verbalizing a goal scored lower than students setting their own goals. Teacher verbalization of goals reminded and clarified for students what skill, concept, or task they would be learning whereas, student goal setting provided students with agency and individualization in their learning. Although teachers in the control and intervention groups may have implemented the same strategy, the overall context and design of the learning environment mattered.

As identified in the conceptual framework, teachers' curriculum and assessment approaches can either foster or impede students' SRL (Eilam & Reiter, 2014). According to Paris and Paris (2001), "students are cognitively engaged in classrooms that have open-ended tasks, projects, and problems that are based on driving questions. These are student-centered and inquiry-driven contexts in contrast to materials-driven or curriculum-driven classrooms" (p. 94). When teachers assign closed tasks for students, students are provided minimal choice and autonomy in their learning, ultimately hindering students' authentic development of SRL skills (Paris & Paris, 2001). Evident in Table 5.10, teachers in the intervention group implemented more student-oriented/student-directed strategies. Most of these strategies were discussed in research questions one, two, and three with findings from data collected in classroom observations, reflection prompts, and/or interviews.

Table 5.10

Observed SRL Strategies in Control (C) vs. Intervention Group (I)

Planning	Monitoring	Evaluating
Clarification of terms (C, I)	Student collaboration (C, I)	Reflection questions (I)
Exemplars (C, I)	Student modeling (I)	Student discussion on strategies (I)
Graphic organizers (I)	Student research (C, I)	Student self-evaluation (I)
Note-taking (C, I)	Teacher feedback (C, I)	Specific praise (C, I)
Rationale (I)	Teacher modeling (C, I)	Teacher suggestions for
Rubric (I)	Time parameters (C, I)	improvement (C, I)
Student-created plans (I)		
Student goal setting (I)		
Student selection of materials (I)		
Teacher goals – verbal (C, I)		
Timeline (I)		

Definitions of SRL: Varying Perspectives

In the control group interviews, teachers did not mention any of the key strategies or phases associated with SRL. Instead, their conceptions of SRL were more big-picture

ideas related to student-centered learning, freedom, or student control. Carol shared her definition of SRL:

> [It] would be a student kind of controlling what they learn, what they need to learn, whether it's grammar first or topic first or learning a vocab word. I guess within a classroom I would say that once a topic is introduced kind of allowing the class to go in the way that the students direct it while somehow staying on topic – in the general area. (I, January 2017)

However, in each of her classroom observations, the lessons were very teacher-driven; there were minimal opportunities for student choice or pace in their learning. Thomas described SRL as:

> Less teacher-driven, but teacher-directed meaning that students are given a framework to explore different topics, which allows them then to use skills that will benefit them in the real world beyond the walls of the classroom. To me, the difference is a teacher-directed learning environment is mostly the skills gained there are listening, recording through note-taking, and memorizing. Student self-regulatory learning would be students learn skills like how to find information that is not necessarily given to them by the teacher, locate that, then synthesize it, use it to come to their own conclusions rather than the conclusions that teacher expects them to come to. (I, January 2017)

In Thomas's observations, he did incorporate these opportunities for students to search for information on their own and synthesize it. However, he also shared that "it's been a slower process for me [to transition to a SRL environment] because I come from the 'old school'" (I, January 2017). Pete described SRL as "learning where the student is able to

move at the pace that is appropriate for them. And, obtaining the material and content. The content delivery is at a pace and in a format [that]… is accessible to them" (I, January 2017). However, in both of Pete's observations, students were expected to work at the same pace as each other. These findings in the control group connected to Spruce and Bol's (2015) research that knowledge of SRL does not necessarily translate into practice in the classroom.

Most teachers in the control group also did not mention their role, as a teacher, in supporting students as self-regulated learners. Instead, they placed a lot of the responsibility on the students for understanding how to regulate their learning and reaching out to them if they need help. For example, Samuel said,

> I expect students to keep up on what their grades are. I expect students to know whether they are putting effort into it and if they are putting effort into it and not getting it, then I want them to come see me. I also want them to be honest with themselves when they say they don't get it… I want them to have some responsibility for doing what they are supposed to do to get it. (I, January 2017)

Sarah described SRL as student ability "to practice, check their answers to see for understanding, ask for help if needed… unfortunately some students do not do that" (I, January 2017). Liam remarked, "I don't think 15 year olds, generally, are used to having the time or the inclination or maybe even the tools for self-awareness or analysis" (I, January 2017). According to Zimmerman (2002), "few teachers currently prepare students to learn on their own" (p. 64). The quotes by teachers in the control group revealed misconceptions about how SRL strategies and behaviors are teachable. Further, in reflecting upon Liam's remarks about student capacity for self-awareness, recent

studies have focused on promoting SRL behaviors in students as young as kindergarteners (Perels et al., 2009). Thus, as Dignath-van Ewijk and van der Werf (2012) point out, teacher beliefs on SRL may impact teacher propensity to support students as self-regulated learners in the classroom.

In comparison to interviews with teachers in the control group, teachers in the intervention group mentioned how they have created more of a partnership between themselves and their students. Alicia mentioned, "I refined my curriculum maps and I gave it to the students so they can see the direction that they are heading for the rest of the year" (I, January 2017). Of note, Alicia refined her curriculum maps over winter break based on the knowledge she gained during the professional development sessions. Emma also shared,

> Instead of having my mind set on what the actual material is itself. I am first trying to think about the girls and how they learn first and then think about how they think, how they learn, and how to best get the material across to them. Rather than just presenting the information – them having to just absorb it. I think more about them first now and what would best reach them. (I, January 2017)

Isabella shared a specific example of her transition from teacher controlled-behaviors to offering students more ownership:

> So even in Phys Ed now, we are down in the weight room. We did skills test and then we took the skills test that they did for fitness and then they created their own fitness program based off how they felt their skills test went. They were finding exercises that worked in the areas of fitness – cardiovascular fitness, muscle fitness – they worked on those so that its ownership. And again, I backed off. It

> wasn't going to hurt them the way they were doing it, I let it go, even though it might not have been as efficient or the best way. But, now that they have been doing it a little now I can say – hey, why don't you try this? And then [students reply], oh – that's harder. You don't have to, it's harder but it will probably be better. Yeah – okay! So, it's kind of again they are taking ownership. I showed them a program where you can go from walking to running 30 minutes on your own. That was after they had already started and I said, hey – it looks like you want to jog? Do you want to? Well here take a look at that because… it's their own and they can choose whether to do it or not. (I, January 2017)

The above excerpts from teachers in the intervention group revealed a shift from teacher control to student control in learning. Each teacher discussed how they applied knowledge gained from the professional development programming in order to shift their approach in teaching students how to become self-regulated learners. These shifts emphasized a partnership between students and teachers in curriculum design, open-ended task completion, and individualization of instruction.

Quantitative and qualitative findings for research question four revealed that teachers in the intervention group provided more opportunities for students to engage in the SRL cycle than teachers in the control group. Interview responses from teachers in the control group highlighted the misconceptions among teachers about SRL, as well as difficulty in articulating their role in supporting students as self-regulated learners. In contrast, teachers in the intervention group shared how they viewed their role in supporting students as self-regulated learners from a course design perspective (e.g., providing students with more ownership) and from a specific lesson perspective (e.g.,

helping students set goals in their learning). Overall, these findings suggested that professional development on SRL can promote teacher awareness and implementation of instruction to support students as self-regulated learners in the classroom.

Discussion

The following section will highlight how the theoretical and conceptual frameworks connect to the above stated findings. This section will also discuss implications for practice, particularly for designers of professional development and teachers. In conclusion, the study's limitations and recommendations for future research will be shared.

Theoretical Connections

Each theoretical framework for this study, social cognitive, sociocultural, and teacher change, provided insight into the findings. From a social cognitive perspective, teachers must make their learning process explicit in order to provide support for students in verbalizing and recognizing how they learn. Edna described SRL for students as,

> Learning at their individual pace in the ways that they learn best and empowering them to discern what they want to learn that will positively impact their futures. This will involve planning, modifying and evaluating along the way. It is a process they own and engage in. (R, October 2016)

As evidenced in Edna's response, SRL is an individualized, active process. Although there were no drastic changes observed in terms of teachers reshaping their curriculum, teachers did increase their strategy use in the classroom to support students' self-regulatory skill development.

Additionally, from a sociocultural lens, teachers in the intervention group shared how their role as a teacher may support or hinder their students' SRL. During the second professional development session, Alicia remarked to the rest of her colleagues that they needed to be high self-regulated learners in order to support these regulatory processes in their students (F, October 2016). Just as these teachers formed a community of learners in the professional development sessions, these same behaviors were observed in the posttest observations.

Lastly, from the perspective of teacher change, teacher participants in the intervention group continually shared how they enjoyed collaborating with their colleagues. Following six of the nine teacher interviews, the teachers asked the researcher if she would facilitate the professional development program for the other teachers in the school because they believed it would be beneficial for the whole school to understand the necessity of supporting students as self-regulated learners. These remarks suggest that to truly transform a learning culture that supports SRL the teachers believe it must involve a school wide commitment, similar to the rationale of the Whole School Agreement mentioned in Chapter 3 (Karp et al., 2016).

Connections to the Conceptual Framework and Literature

In Zimmerman's (2005) articulation of four development levels of regulatory skills, he listed self-control as the precursor for self-regulation. He defined self-control as student ability to practice and receive reinforcement in the classroom, whereas he defined self-regulation as student ability to adapt their skills and behaviors based on varying tasks and environments. Interestingly, some teachers (33%) in the control group conceptualized SRL as self-control behaviors. Other teachers (22%) in the control group were able to

verbalize a definition of SRL, but did not implement these practices in the classroom. The discrepancy between teacher knowledge and teacher practice of supporting students as self-regulated learners was also in alignment with Spruce and Bol's (2015) findings – what teachers say does not always translate into what they do.

As discussed in Eilam and Reiter's (2014) case study, in order to provide students with opportunities to self-regulate their learning, teachers must design learning environments that value student voice and individualization of the learning process. Therefore, although the conceptual framework mainly aligned with the findings from the intervention, one component should be further expanded: curriculum and assessment. At Little Flower Academy, teachers individually or departmentally designed the curriculum. Therefore, this curriculum design oftentimes impacted student ability to individualize their learning. Further, teachers really struggled in understanding how grades fit into students' SRL – assuming that students' satisfaction with learning was only measured through formalized assessments. Adrian clearly articulated this struggle:

> Before [the professional development] I understood what self-regulation means, but it was hard for me to fully buy-in because I just know how grade-driven so many of our students are. So I understood what it is, I believe in it, and I can see the big picture of why it's better for them, why it's more effective like I understood that, but it was just hard for me to realistically see how it could positively impact my classroom just knowing that the quality of work I assign when I attach a grade to it is so much more significant than when I don't, especially with freshmen or even AP. So I felt like before I started [the professional development] that was my thought, but then after I went through it, I

> realized that you can still attach grades to things and have them self-regulate… [by] having them have personal goals as well and seeing the big picture. (I, January 2017)

Despite SRL being linked to academic achievement (Zimmerman, 1990), some teachers may still struggle with understanding how to design curriculum to foster self-regulated learners. As Nilson (2013) discusses, creating self-regulated learners should not be viewed as a separate entity from the course curriculum because these processes help students learn and apply the course's content and skills. Therefore, curriculum and assessment should be further expanded upon to include, but not limited to, teachers' use of open-ended versus closed-ended tasks in the classroom and students' role in assessment design and evaluation (Paris & Paris, 2001; Perry et al., 2006).

Because Little Flower Academy functioned as a one-to-one tablet school, the extent in which teachers used technology either as an electronic notebook or as a tool impacted teacher implementation of strategies to support students as self-regulated learners. For example, Estelle's students were prompted to find resources in order to watch experts model conducting skills and concurrently, practice these skills. Her students mainly utilized Youtube as a resource; students were allowed to use any resources deemed credible by them. By utilizing the tablet as a tool for research and information acquisition, students were able to self-instruct and bookmark resources for future reference. In contrast, Carol's students took down notes on an electronic teacher-created worksheet. These students were offered limited choices in their resource management and technology was simply used as a substitution for paper-created

materials. Therefore, teachers and students' technology use should also be added to the conceptual framework.

Implications for Practice

Although the professional development program was short in duration, 11 sessions over three months, and did not span the entire school year, statistical differences on the local level were found in teachers' implementation of strategies to support students in the planning phase. Further, based on qualitative findings, teachers in the intervention group were able to clearly verbalize how and why these strategies are important to fostering self-regulated learners. The findings from research questions two and three also suggest that teachers may need to more deliberately offer short-term and long-term opportunities for students to self-monitor, evaluate, and reflect on their learning. Understanding why teachers may not offer more ongoing opportunities for students to self-monitor and self-assess upon their learning, as well as how professional develop can support teachers in implementing those opportunities could be areas of future research.

Overall, the above stated findings align with Perels et al. (2009) and Spruce and Bol's (2015) suggestions that teachers need explicit instruction on how to support their students as self-regulated learners in the classroom. Eighty percent of the veteran teachers in the intervention group voiced that this way of thinking about learning (i.e., self-regulation) is new to them and thus, they appreciated the support in transitioning their philosophies about students' learning and their practice in the classroom. In addition, prior to this study, Little Flower Academy relied on teacher training, which Freeman (1989) argues is not a sustainable method for teacher change. Thus, Little Flower Academy needs to consider moving to more sustainability models that value teachers'

voice in their professional growth. These short-term intervention findings recommend that embedded, collaborative, ongoing professional development focused on increasing teachers' awareness, how-to knowledge, and practical applications (Freeman, 1989; Rogers, 2003) best support teachers in changing their classroom practice to support self-regulated learners.

Reflections on professional development design. Based upon teachers' reflections on the professional development program as well as researcher observations of teachers' implementation of SRL instructional strategies, the following recommendations are posed for replication of the professional development program. To encourage teachers to implement changes in practice related to forethought/planning, performance/monitoring, and self-reflective/evaluation strategies, teachers should engage in a PDSA cycle following each of these sessions (i.e., sessions three, four, and five). By moving the PDSA cycles earlier in the professional development program, each cycle may encourage teachers to experiment with a variety of changes in practice known to support students' SRL. To encourage teachers to think more broadly about how the classroom environment supports students' SRL development (Paris & Paris, 2001), teachers could conduct a lesson study via video or classroom observation. Collaborative discussions about this lesson study, embedded in the professional development program, may support teachers' understanding of the value in promoting explicit SRL strategy instruction and supporting SRL development in the classroom.

Recommendations for Future Research

This study also highlights potential avenues for future research. Due to the small sample size of this study, a replication of the professional development program with a

larger sample size may further illuminate how professional development supports teachers in adjusting their practice. Additionally, because data were only collected on teachers' implementation of SRL strategies, it would be interesting to study how these findings align with students' perceptions of their self-regulatory learning processes, even within the same classroom. Furthermore, in a high school setting, students are exposed to a variety of courses and teachers; thus, it would be interesting to conduct observations on how students' self-regulatory learning efficacy change or maintain throughout the school day. Lastly, as more classes are shifting towards blended (i.e., hybrid model of face-to-face instruction and online learning in the classroom) and personalized learning approaches (i.e., instructional model that values student pace, choice, and interests), future studies could focus on the importance of fostering students as self-regulated learners in these learning environments. Because learners are provided with more autonomy in blended and personalized learning approaches, teachers must deliberately foster students' self-regulatory efficacy to combat avoidance strategies (Turner et al., 2002).

Limitations

There were two main limitations to this study: sample size and bias. The small sample size of nine teachers in the control group and nine teachers in the intervention group reflected the small population ($N = 39$) of teachers at Little Flower Academy. However, this limited sample size did affect the generalizability of the findings. Further, any demographics might help understand the result better, but there was not enough power to try to analyze the demographics. Despite these limitations, the findings may be descriptive to other private, all-female high schools.

Additionally, all participants were professional colleagues of the researcher. Although the researcher did not share the observation tool with participants, participants in the intervention group may have reacted to the experimental situation by displaying classroom behaviors that they predicted the researcher may want to observe (Shadish et al., 2002). The researcher also did not have a co-observer for each classroom observation. In an attempt to mitigate this bias, the researcher was blinded to participant group assignment during the pretest classroom observations. The researcher also documented every score on the observation tool with evidence from the classroom observations. The researcher reviewed all of the observation scores during data analysis to ensure consistency in scoring.

Summary

Quantitative findings from this study revealed that collaborative professional development, embedded in school hours, supported teachers in providing more opportunities for students to plan for a learning task and in supporting students to engage in the overall SRL cycle. Qualitative findings documented a shift in teachers' conceptualization of SRL, essential to understanding how they can foster self-regulated learners in the high school classroom. As Zimmerman (2002) notes, SRL strategies and mindsets are teachable for all students, yet teachers must model these processes and provide SRL opportunities in the classroom (Paris & Paris, 2001). A professional development program focused on creating an awareness of the value of fostering self-regulated learners and an understanding of how to implement strategies and curricula opportunities to develop students' cognitive awareness provides teachers from varying content areas with the necessary knowledge and support to shift their classroom practice.

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Appendix A

Teacher Survey Instrument

Introduction: For my doctoral studies at Johns Hopkins University, I am studying the relationship between teacher beliefs on SRL and its implementation in the classroom environment. Since you currently serve as a classroom teacher for three or more courses, I am asking for your help in evaluating your own beliefs and your classroom environment. I appreciate your honest responses to this brief survey. The following survey will first provide a description of SRL followed by questions on your beliefs, as well as your classroom environment. Thank you for your participation!

The following definition of SRL has been adapted from Lombaerts et al.'s (2009) SRL Teacher Beliefs scale.

What is SRL?

The following description will compare "learning to self-regulate" with riding and steering a bike. Imagine a student steering a bike. She can and has to decide about a lot of things: *where to go to, how fast* to drive, which *road to choose*. If it is a longer ride, she should also consider when to insert a short stop, e.g. *to check* the road map, *to control* if she is still on the right track, or to check out something that comes across. At the same time, she also assumes responsibility: when driving in an unknown environment, she must *gather information* about the area first, *map out a route* to take… and can't blame someone else if she drives in the wrong direction.

You will have noticed that a lot of words are presented in italic. After all, the same terms could be used when describing SRL. When fully self-regulated, a student would:

- Determine what she wants to learn (*where to go*)
- Find out what she needs for it (*gathering information*)
- Develop a plan to tackle a learning task (*map out a route*)
- Determine the working tempo (*how fast*)
- Decide how to learn (*road to choose*)
- Regularly control progress (*control*)
- Make adjustments until the desired results are attained

During the bicycle story, you may have thought that it is quite dangerous to send out students on their own during a long trip in an unknown environment. The same goes for SRL. Full SRL is not attainable in compulsory education. Still, in education settings, a learner can take responsibility for several tasks, traditionally taken care of by the teacher.

Also, SRL is not a synonym of "learning on your own." Working together with fellow students, and seeking other students' advice are essential within SRL. Indeed, a bicycle ride can be made together with others.

I believe that…	1 Strongly Disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly Agree
SRL makes students evaluate their learning approach better.					
Students should be able to make decisions about the sequence and duration of their learning activities more often.					
Students should be able to decide when they work on an assignment more often.					
A self-regulated environment makes it easier to take into account students' experiences and interests.					
Students have the capacity to determine what they want to learn.					
Each student should be given the opportunity to regulate her own learning.					
SRL leads to a more efficient collaboration between students.					

In my courses/classrooms…	1 Strongly Disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly Agree
Students describe personal learning goals.					
Students describe short-term learning goals to master their long-term personal learning goals.					
Students divide big assignments into smaller parts.					
Students describe their progress based on obvious criteria (i.e., rubric).					
Students describe how their thinking and acting have changed					

due to the obtained new knowledge and skills.					
Students provide peer feedback to other students.					
In my courses/classrooms…	**1 Strongly Disagree**	**2 Disagree**	**3 Neutral**	**4 Agree**	**5 Strongly Agree**
My assignments connect well to students' prior knowledge.					
My course provides opportunities for student choice.					
I provide feedback to students' learning progress.					
I make use of planned moments for students on which they can meet me to ask questions about their progress or students can always meet me when they have questions about their progress.					
I grade the assignments based on previously formulated judging criteria.					
I demonstrate that making mistakes is part of the learning process.					
I stress students' strong qualities.					
During collaboration, I pay attention to students' specific collaboration skills such as dividing tasks and reporting to each other.					
During collaboration, I pay attention to students' general social and communicative skills such as good listening and respecting other opinions.					

Appendix B

Student Survey Instrument

Introduction: For my doctoral studies at Johns Hopkins University, I am studying how your teachers and your classes support SRL (your ability to learn how to learn). Since you are a current student at Little Flower Academy, I am asking for your help in evaluating your own learning strategy use and evaluating how your classes support your learning. I appreciate your honest responses to this brief survey. Thank you for your participation!

Demographic Questions

What is your current grade level?

- Grade 9
- Grade 10
- Grade 11
- Grade 12

What is your estimated cumulative Grade Point Average (GPA)?

- Over a 4.0
- 3.7 – 4.0
- 3.4 – 3.6
- 3.0 – 3.3
- 2.6 – 2.9
- Below a 2.6

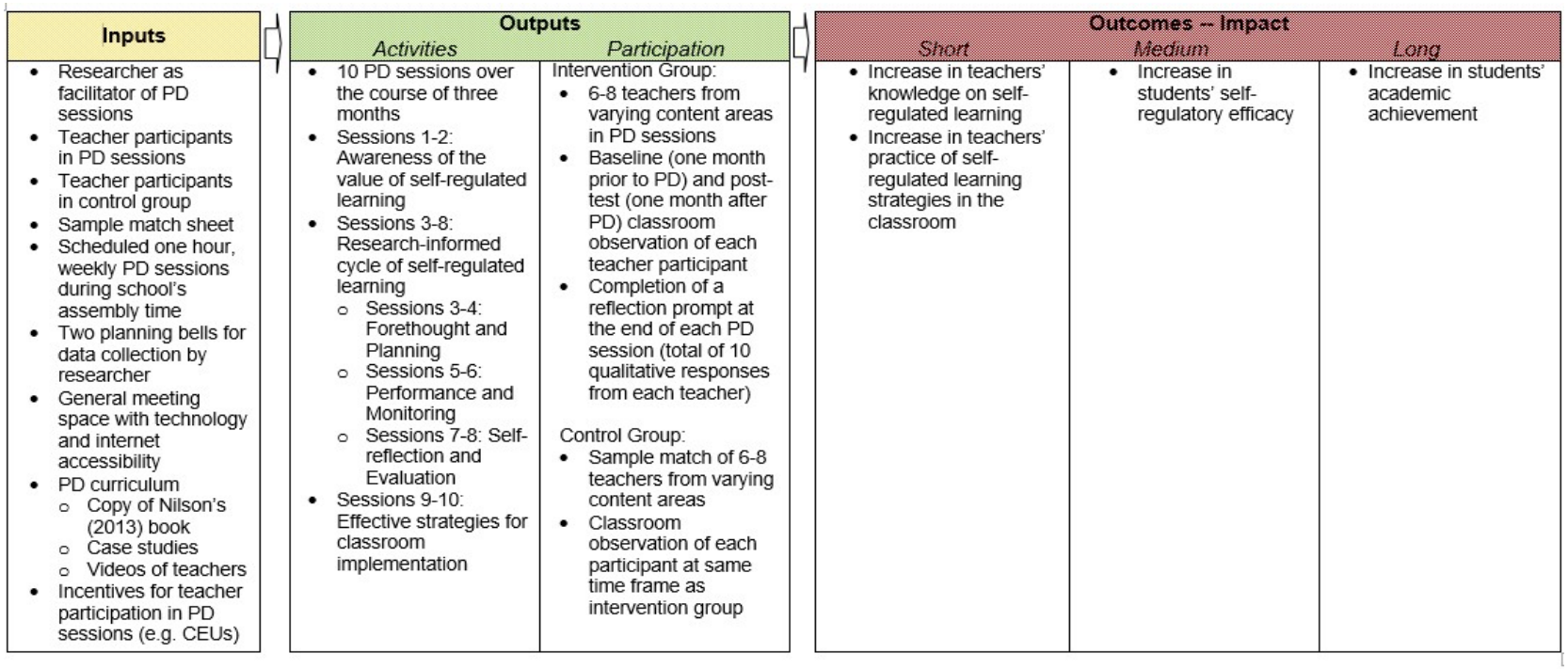
In my classes at Little Flower Academy high school …	**1 None of my classes**	**2 One or two of my classes**	**3 Three of my classes**	**4 Four or five of my classes**	**5 All of my classes**
I am provided opportunities to set my own learning goals.					
I am able to make decisions about what I want to learn.					
I am able to make decisions about how I want to learn concepts and/or skills.					
I can collaborate with my peers.					
I reflect on my progress and adjust my performance.					

I feel confident in my ability to approach varying tasks (i.e., tests, papers, projects).					
In my classes at Little Flower Academy high school…	**1 None of my classes**	**2 One or two of my classes**	**3 Three of my classes**	**4 Four or five of my classes**	**5 All of my classes**
I know which strategies are best for approaching varying tasks (i.e., tests, papers, projects).					
I ask my teacher questions when I do not understand something.					
I tell myself exactly what I want to accomplish with my learning.					
I tell myself to keep trying when I can't learn a concept or skill.					
I try to forget about the topics that I have trouble learning. (reversed scoring)					

In my classes at Little Flower Academy high school …	**1 None of my classes**	**2 One or two of my classes**	**3 Three of my classes**	**4 Four or five of my classes**	**5 All of my classes**
My teacher sets clear expectations.					
My teacher provides specific feedback to achieve my learning goals.					
My teacher provides encouragement to achieve my learning goals.					
My teacher models how to approach varying tasks (i.e., tests, papers, projects).					
My teacher offers help when I do not understand concepts and/or skills.					
My teacher explains why we are learning what we are learning.					

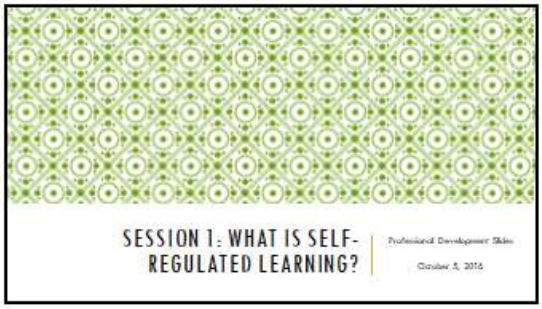
Appendix C

Logic Model



Appendix D

Professional Development – PowerPoint Slides



TODAY'S AGENDA

- Attendance
- Overview of Professional Development
- Activity
- Group Discussion
- Overview of Self-Regulated Learning
- Reflection Question

OVERVIEW OF PROFESSIONAL DEVELOPMENT (PD)

- Purpose of research study
  - Self-regulated learning strategies in the classroom
  - Intervention vs. control group structure
- Benefits of participation
  - Collaboration across subject areas
  - CEUs – 15 hours (extra hours for time spent outside of PD session)
  - Ideas and direct applications to classroom practice
  - Student learning

OVERVIEW OF PD (CONTINUED)

- Requests/PD structure
  - OneDrive folder – PPT slides and materials
    - Please do NOT share any of these materials and/or knowledge with teachers outside of this group
  - Reflection question at end of each PD session
  - Video recording of each PD session

QUESTION FOR BRIEF DISCUSSION

What do you hope to gain out of this professional development experience?

ACTIVITY

You have each been assigned a task. Please complete this task within the next 10 minutes.

DISCUSSION

What strategies did you use to complete the task? What were your feelings during this activity?

WHAT STRATEGIES DID YOU USE TO COMPLETE THE TASK? WHAT WERE YOUR FEELINGS DURING THIS ACTIVITY?

Strategies	H or L?	Feelings	H or L?
Read it multiple times	H	Low self confidence; stressed out	L
Breaking problem into smaller components	H	Wanted to give up	L
Started looking for clues, hints	H	Pleasure in solving problem	H
Clarifying question	H	Casual attribution	H
Annotation/underlining	H	Pressure to work on task even if not ready	L
Activating previous knowledge	H		
Developing a plan	H		
Needed to use someone more knowledgeable	H		
Chose not to collaborate	L		

ACTIVITY WRAP-UP

In the last slide, I noted which strategies/feelings are typically associated with low/naïve self-regulated learners ("L") vs. high/skilled self-regulated learners ("H").

- Task-specific
- Context matters
- Goal orientations

What could I have done to support your completion of the task/learning?

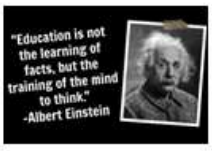
SELF-REGULATED LEARNING & THE ROLE OF THE TEACHER

- Self-regulated learning approaches are teachable for all students (Zimmerman, 2002)
- Teachers over several years must promote self-regulated learning as an instructional approach in their curriculum, as well as provide opportunities to reinforce these learning behaviors (Dignath-van Ewijk & van der Werf, 2012)

Dignath-van Ewijk, C., & van der Werf, G. (2012). What teachers think about self-regulated learning: Investigating teacher beliefs and teacher behavior to promote self-regulated learning. *Education Research International*, *2012*(1), 1–10. doi:10.1155/2012/614768

Zimmerman, B.J. (2002). Becoming a self-regulated learner: An overview. *Theory into Practice*, *41*(2), 64–70. doi:10.1207/s15430421tip4102_2

WHAT IS SELF-REGULATED LEARNING?



- Learning how to learn
- Entails strategic, deliberate actions on the part of the learner
- Four levels of self-regulatory skill development (Zimmerman, 2005):
  1. Observation
  2. Emulation
  3. Self-Control
  4. Self-Regulation

Zimmerman, B.J. (2000). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, P.R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 13–39). San Diego, CA: Academic Press.

SELF-REGULATED LEARNING CYCLE

Zimmerman, B.J. (2002). Becoming a self-regulated learner: An overview. *Theory into Practice*, *41*(2), 64–70. doi:10.1207/s15430421tip4102_2

WHY DO WE WANT TO FOSTER SELF-REGULATED LEARNERS?

- ✓ Increases student achievement in courses
- ✓ Increases amount and depth of student thinking and learning
- ✓ Prepares students for lifelong learning and post-secondary learning

Connection to our current ACT/SAT test prep…

- ✓ Goleman (1996) argues that the "ability to self-regulate predicts SAT scores more strongly than does IQ, parental education, or parental economic status" (cited in Nilson, 2013, p. 11).

Nilson, L.B. (2013). Creating self-regulated learners: Strategies to strengthen students' self-awareness and learning skills. Sterling, VA: Stylus Publishing.

REFLECTION QUESTION – SURVEYMONKEY LINK

Please check your email for the SurveyMonkey link. At the end of each PD session, there will be a reflection question. Please respond honestly and thoughtfully.

SESSION 2: SELF-REGULATED LEARNING AT LITTLE FLOWER ACADEMY

Professional Development Slides

October 20, 2016

TODAY'S AGENDA

- Attendance
- What is Student-Centered Learning?
- Self-Regulated Learning – Review and Additional Details
- Video on Big Picture of Self-Regulated Learning
- Discussion
- Reflection Question

What does student-centered learning mean?

Respond at **PollEv.com/christinemin463**

Text **CHRISTINEMIN463** to **37607** once to join, then text your message

"Students are actively engaged in the learning process."

"Learning that causes the student to critically think and pursue answers for themselves."

"Students engaged and self directed in their learning process."

"Giving students an opportunity to create their own knowledge as it relates to a particular learning objective/theme."

"Teacher-centered learning is where the teacher is the performer and the students are the observers."

What does student-centered learning mean?

Respond at **PollEv.com/christinemin463**

Text **CHRISTINEMIN463** to **37607** once to join, then text your message

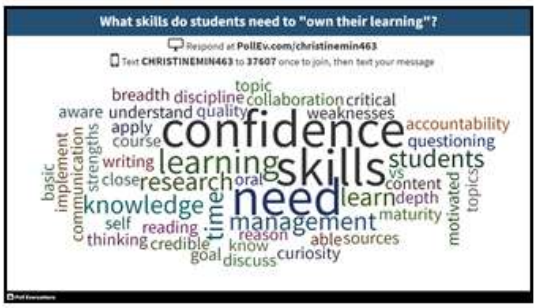
"I as the teacher care more about evaluating the students' performance than most everything."

"Students centered learning is where the students are the performers and the teachers are the observers"

"An environment where students learn how to learn and see themselves as life-long learners."

"Students are driving the learning environment and conversations. Students are learning by doing and are actively participating in the lesson. Teacher's role is facilitating the environment."

"the learning is student led--where they are now and what they actually need in the future"

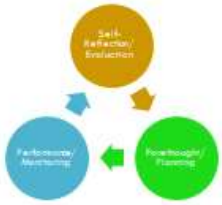


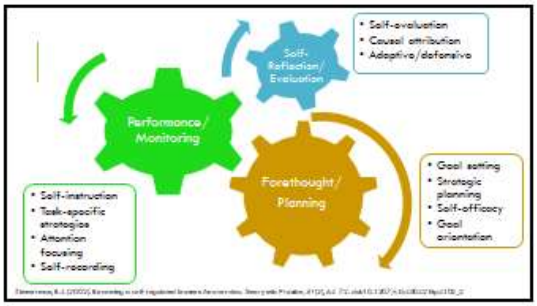
STUDENT CENTERED-LEARNING & SELF-REGULATED LEARNING

From our school's website: "Our goal is to provide each student with the academic rigor which will engage her in the learning process and challenge her to become a successful lifelong learner."

What is the relationship between student-centered learning and self-regulated learning?

SELF-REGULATED LEARNING CYCLE





CASE STUDY – 9TH GRADE SCIENCE CLASSROOM

Self-Regulated Learning Class (SR)	Teacher-Controlled Class (TC)
25 students	27 students
Students managed their own learning assignments and modes of learning	Students automatically progressed along the curriculum in a linear fashion
Student choice and pace	Textbook driven sequencing
Teacher scaffolding based on students' ability to learn	Students completed same examinations at same time as their classmates
Specific tools and instruments created to foster self-regulated learning strategies – goal-setting, resources needed, self-evaluation	Some self-regulated learning processes were supported (e.g. reviewing test answers in class), but not deliberately structured into curriculum

Results = Students in SR class scored higher on science knowledge tests and rated themselves as higher self-regulated learners compared to students in TC class

Chen, S., & Reiner, S. (2011). Long-term self-regulation of biology learning using standard junior high school science curriculum. *Science Education*, *95*(4), 705-737. doi:10.1002/sce.21124

BIG PICTURE – SELF-REGULATED LEARNING

https://www.teachingchannel.org/videos/personalized-learning-plans-adv

DISCUSSION PROTOCOL

In your assigned group, please discuss the questions on the next slide. Be prepared to share comments/thoughts with larger group.

DISCUSSION QUESTIONS

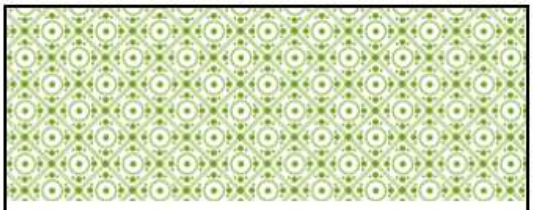
- Where do you see the video example currently at Little Flower Academy?
- Where do you see students setting goals, monitoring their strategy use, and reflecting on their learning?
- How might you try this out in your classroom?

DISCUSSION RECAP

"Food for Thought": How can we best support our students as self-regulated learners?

REFLECTION QUESTION – SURVEYMONKEY LINK

Please check your email for the SurveyMonkey link. At the end of each PD session, there will be a reflection question. Please respond honestly and thoughtfully.



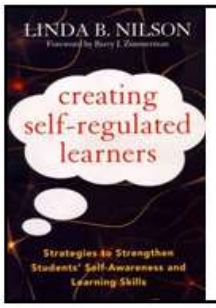
SESSION 3: PLANNING STAGE OF SELF-REGULATED LEARNING

Professional Development Slides

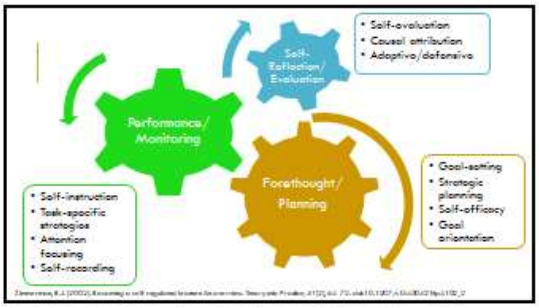
October 26, 2016

TODAY'S AGENDA

- Attendance
- Overview of Book
- Planning/Forethought Stage of Self-Regulated Learning
- Individual Activity
- "Speed Dating"
- Reflection Question



- ✓ Overview and Research on Self-Regulated Learning
- ✓ Ideas/Thoughts about Fostering Self-Regulated Learners for a variety of tasks….
  - Reading
  - Writing
  - Lecturing
  - Exams/Quizzes
  - Meta-Assignments
- ✓ Discussion on What to Grade vs. What Not to Grade



FORETHOUGHT/PLANNING QUESTIONS FOR STUDENTS

- What kind of a task is this?
- What is my goal and how will I know I have reached it?
- How motivated am I to perform the task, and how can I increase my motivation if it's low?
- How much time and how many resources will be necessary?
- What do I already know about the topic?

INDIVIDUAL ACTIVITY

Based on the planning questions (on p. 8 of Nilson's book), compose a list of practical classroom applications to support students during the forethought/planning phase. These can be strategies/practices you currently incorporate or want to try out.

"SPEED DATING" WITH CLASSROOM APPLICATIONS

You will spend 2 minutes reading your peer's list. You will then have 3 minutes to provide feedback/comments. (e.g. Have you tried this before? If so, what recommendations or thoughts do you have? Are you interested in learning more about something?)

BEFORE NEXT SESSION

Critically reflect on one or two class lessons. How did you support students in planning for their learning task? **AND/OR** Did you notice any gaps in student planning for a learning task?

Document this on the back side of your activity paper for today. We will share back/discuss at the beginning of our next session (Nov. 2).

REFLECTION QUESTION – SURVEYMONKEY LINK

Please check your email for the SurveyMonkey link. At the end of each PD session, there will be a reflection question. Please respond honestly and thoughtfully.

SESSION 4: MONITORING STAGE OF SELF-REGULATED LEARNING

Professional Development Slides

November 2, 2016

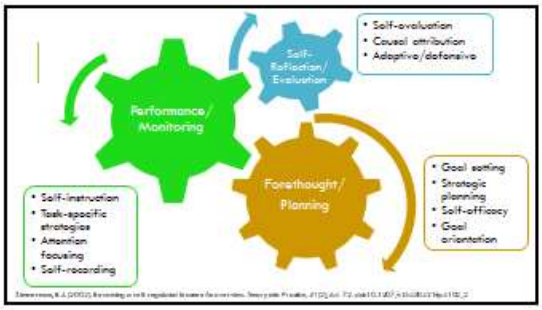
TODAY'S AGENDA

- Attendance
- Partner Discussion on "Homework"
- Monitoring/Performance Stage of Self-Regulated Learning
- Student Scenarios Activity and Small Group Discussion
- Reflection Question

"HOMEWORK" PARTNER DISCUSSION

- Partner up and share your thoughts/reflections on the "homework" prompt.

Prompt: Critically reflect on one or two class lessons. How did you support students in planning for their learning task? **AND/OR** What did you try that was new to your repertoire?



MONITORING/PERFORMANCE QUESTIONS FOR STUDENTS

- Am I sure I know what I am doing?
- Does my approach to the task make sense?
- How well are my strategies working?
- Am I making good progress towards my goal?
- What changes in my approach or strategies should I make, if any?

MONITORING/PERFORMANCE QUESTIONS FOR STUDENTS

- What material is the most important?
- What material am I having trouble understanding? Recalling?
- How does what I am learning relate to what I already know?
- How does what I am learning relate to my experience or my future?
- How is my thinking on the topic changing?

Wilson, L.B. (2015). *Creating self-regulated learners: Strategies to strengthen students' self-awareness and learning skills*. Sterling, VA: Stylus Publishing.

SMALL GROUP ACTIVITY – STUDENT SCENARIOS

- ✓ Split into two groups.
- ✓ Each of you will receive a card that includes a student scenario. Each group will also be given multiple cards that include monitoring/performance strategies known to foster self-regulated learning.

STUDENT SCENARIOS

- After you review your student scenario card, introduce "your student" to members of your small group.
- Then, "go fish" for a strategy card. Try to find a strategy card that will assist this student in monitoring their learning and adapting their strategy use.
- Feel free to share any strategy cards that may be helpful for your group members' "student."

SMALL GROUP DISCUSSION

- How does your strategy card align with your student scenario? In other words, why do you believe that this strategy would assist this student in monitoring their learning and adapting their strategy use?

AND/OR

- If someone in your group shared a strategy card with you, what were your initial thoughts/feelings? How could "sharing of strategies" be replicated in the future?

CREATING SELF-REGULATED LEARNERS

"This book is best seen not just as a catalog of exercises and activities to use here and there for spicing up your course. Rather, consider it as a guide to structuring a course that teaches not only disciplinary knowledge and skills, but also proven strategies to learn and retain them, for your course and long beyond it" (Nilson, 2015, p. 14).

"Food for Thought": How do we strategically implement some of the shared strategies to support **all** of our students as self-regulated learners?

REFLECTION QUESTION – SURVEYMONKEY LINK

Please check your email for the SurveyMonkey link. At the end of each PD session, there will be a reflection question. Please respond honestly and thoughtfully.

SESSION 5: EVALUATION STAGE OF SELF-REGULATED LEARNING

Professional Development Slides

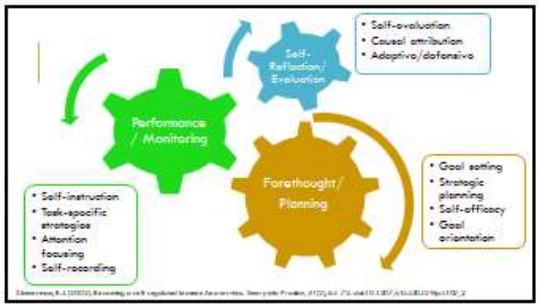
November 3, 2016

TODAY'S AGENDA

- Attendance
- Recap of Planning and Monitoring Stages
- Evaluation/Self-Reflection Stage of Self-Regulated Learning
- Video Choice
- Evaluation/Self-Reflection Tool
- Reflection Question

RECAP OF PLANNING AND MONITORING STAGES

- How can we support our students in planning for their learning?
- How can we support our students in monitoring their learning?



EVALUATION/SELF-REFLECTION QUESTIONS FOR STUDENTS

- How well did I achieve my goal?
- How well did I master what I set out to learn?
- How well did I avoid sources of interference and stay on task?
- What approach or strategy worked well? What didn't work?
- What do I need to do differently when taking on a similar task?

EVALUATION/SELF-REFLECTION QUESTIONS FOR STUDENTS

- What were the most important points I learned?
- What am I still having trouble understanding?
- What do I need to review?
- What questions do I have that should be answered by an expert?
- How does what I learned relate to other things I've been learning or have experienced?
- How has my thinking on the topic changed?

VIDEO

- Select one of the following videos to watch. As you are watching the video, you should respond/jot down ideas to the questions provided on the Word document.

Highlighting Mistakes: A Grading Strategy

https://www.teachingchannel.org/videos/math-test-grading-tips

Making Feedback Meaningful (Writing-Oriented)

https://www.teachingchannel.org/videos/personalize-feedback-for-students

Student Self-Assessment

https://www.youtube.com/watch?v=CkFWbC91PXQ

VIDEO QUESTIONS

- How was the teacher guiding the student(s) towards a better understanding of their task completion?
- How did the teacher support the student(s) in understanding the *process* of learning?
- How did the student(s) react/adjust behavior based on their performance?

EVALUATION/SELF-REFLECTION TOOL

Choose one of the following groups/categories to join:

- ✓ Knowledge-oriented goal/task
- ✓ Performance-oriented goal/task
- ✓ Reading-oriented goal/task
- ✓ Writing-oriented goal/task

- In your pair or group, create a reflection or evaluation tool for students. This does not need to be anything complex/detail-oriented – hopefully, you can use it in your classroom!
- Be prepared to share your tool with the large group and send a copy to my email so I can share them in our OneDrive account.

REFLECTION QUESTION – SURVEYMONKEY LINK

Please check your email for the SurveyMonkey link. At the end of each PD session, there will be a reflection question. Please respond honestly and thoughtfully.

SESSION 6: SELF-REGULATED LEARNING IN THE CLASSROOM

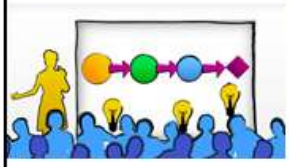
Professional Development Slides

November 9, 2016

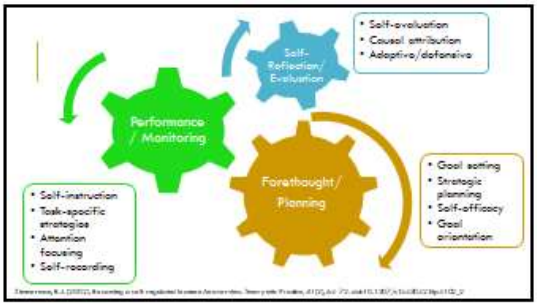
TODAY'S AGENDA

- Attendance
- Presentations on Evaluation/Self-Reflection Tool
- Review of the Self-Regulated Learning Cycle
- Checklist for Self-Regulated Learning in the Classroom
- Reflection Question

PRESENTATIONS ON SELF-REFLECTION/EVALUATION TOOL



- Each group (knowledge-oriented, writing-oriented, and performance-oriented) will present their self-reflection/ evaluation tool for students.
- Audience: Write down one strength and one suggestion for the group's tool revision on a post-it note.



WHAT DOES SELF-REGULATED LEARNING LOOK LIKE IN THE CLASSROOM?

- As a large group, we will create a checklist for observing self-regulated learning strategies/opportunities in the classroom.
- Think about the cycle of self-regulated learning – planning/forethought, monitoring/ performance, and self-reflection/ evaluation.
- What would these phases look like in the classroom?

CHECKLIST

- Each of you will be given a set of post-it notes – write one idea per post-it note. Place the post-it notes on the chalkboard.
- You will also be given some stickers. Once everyone posts their ideas, sticker your "top 5" favorite checklist items.

"HOMEWORK" FOR NEXT SESSION

- Using our collaborative checklist, self-evaluate one or more of your classroom lessons. Which of the checklist items were present or absent? Which of the checklist items do you rarely, occasionally, or frequently employ?
- We will share our self-reflections at the beginning of our next session (Nov. 21).

REFLECTION QUESTION – SURVEYMONKEY LINK

Please check your email for the SurveyMonkey link. At the end of each PD session, there will be a reflection question. Please respond honestly and thoughtfully.

SESSION 7: INDIVIDUAL PDSA - PLAN

Professional Development Slides

November 21, 2016

TODAY'S AGENDA

- Attendance
- "Homework" Review – Self-Regulated Learning Checklist
- PDSA Cycles
- Independent Work
- Partner Feedback
- Reflection Question

"HOMEWORK" – SELF-REGULATED LEARNING CHECKLIST

- Mark any areas on your self-regulated learning checklist that you would like to improve upon (with an "I") or try out in your classroom (with a "T").

PDSA CYCLES

- Purpose: To experiment with short, iterative cycles of change.
- Why? Too often we don't systematically experiment with new ideas.

Bryk, A.S., Gomez, L.M., Grunow, A., & LeMahieu, P.G. (2015). *Learning to improve: How America's schools can get better at getting better.* Cambridge, MA: Harvard Education Press.

PDSA Cycles – Purpose of Each Phase

Bryk, A.S., Gomez, L.M., Grunow, A., & LeMahieu, P.G. (2015). *Learning to improve: How America's schools can get better at getting better.* Cambridge, MA: Harvard Education Press.

"PLAN" FOR YOUR PDSA CYCLE

- What change do you want to implement/experiment with in your classroom practice?
  - These don't need to be large changes!
- How will you implement it in an upcoming lesson?
- Review the exemplar and complete the top header and box #1: plan on the template.

"PAIR THINKING"

- ❑ Share your plan with a partner in your content area or similar content area.
- ❑ Gain feedback on your plan and revise as needed.

From *The Martian* – Andy Weir

"They say no plan survives first contact with implementation."

Mark Watney

"HOMEWORK" FOR NEXT SESSION

- PDSA cycle – "Do"; Implement the change in practice and collect data to present at next session. Data does not need to be detailed/complex.
- We will share our experience and data/artifacts in a roundtable discussion during our next session (Nov. 29).

REFLECTION QUESTION – SURVEYMONKEY LINK

Please check your email for the SurveyMonkey link. At the end of each PD session, there will be a reflection question. Please respond honestly and thoughtfully.

SESSION 8: INDIVIDUAL PDSA – STUDY AND ACT

Professional Development Slides
November 29, 2016

TODAY'S AGENDA

- Attendance
- Review of PDSA Cycles
- Roundtable Discussion
- Independent Work
- Next Steps in PDSA Cycle
- Reflection Question

PDSA Cycles – Purpose of Each Phase

Bryk, A.S., Gomez, L.M., Grunow, A., & LeMahieu, P.G. (2015). *Learning to improve: How America's schools can better at getting better.* Cambridge, MA: Harvard Education Press.

ROUNDTABLE DISCUSSION

- Split into two small groups. Each group member should respond to the following questions:
  - What change did you implement in your practice?
  - How did it go?
  - Did your predictions align with your results?
  - What does the data tell you about students' self-regulated learning?
- After each group member responds to the above questions, then the group should provide feedback – suggestions for improvement and/or ideas for next time.

INDEPENDENT WORK

- Document your roundtable discussion in the "study" and "act" categories of your PDSA document.

From *The Martian* – Andy Weir

"They say no plan survives first contact with implementation."

Mark Watney

PDSA CYCLE – NEXT STEPS

- We will embark on another PDSA cycle between December 7 (next session) and December 14 (session #10). Think about if you want to abandon and try out a new "change" OR if you want to try this "change" under different conditions.
- Next PDSA cycle – peer classroom observations to collect data

REFLECTION QUESTION – SURVEYMONKEY LINK

Please check your email for the SurveyMonkey link. At the end of each PD session, there will be a reflection question. Please respond honestly and thoughtfully.

SESSION 9: PEER PDSA - PLAN

Professional Development Slides

December 7, 2016

TODAY'S AGENDA

- Attendance
- PDSA Cycles
- Independent Work
- Partner Discussion
- Reflection Question

PDSA Cycles – Purpose of Each Phase

Bryk, A.S., Gomez, L.M., Grunow A., & LeMahieu, P.G. (2015). *Learning to improve: How America's schools can get better at getting better.* Cambridge, MA: Harvard Education Press.

"PLAN" FOR YOUR PDSA CYCLE

- What change do you want to implement/experiment with in your classroom practice?
  - These don't need to be large changes!
- How will you implement it in an upcoming lesson?
- Review the exemplar and complete the top header and box #1: plan on the template.

PURPOSE OF PEER OBSERVATION

- Observation must occur between December 8 and 13.
- You will be collecting data per your peer's request. I will distribute a template for you to collect data.
- Please wait to share your observations/thoughts with your peer until next session on December 14.

PEER DISCUSSION

- ❑ Share your plan with your observation peer.
- ❑ Discuss what data you want your peer to collect. Peer should write down any "notes to self" on the template.

"HOMEWORK" FOR NEXT SESSION

- PDSA cycle – "Do"; Implement the change in practice and observe your peer's class.
- You will share your findings/observation/thoughts with your peer during our next session (Dec. 14).

REFLECTION QUESTION – SURVEYMONKEY LINK

Please check your email for the SurveyMonkey link. At the end of each PD session, there will be a reflection question. Please respond honestly and thoughtfully.

SESSION 10: PEER PDSA – STUDY AND ACT

Professional Development Slides
December 14, 2016

TODAY'S AGENDA

- Attendance
- Observation – Partner Discussion
- Independent Work
- Large Group Reflection
- Reflection Question

OBSERVATION DISCUSSION

- Split into your observation triad.
- Referencing your observation template, share your key findings and/or insights with your colleagues.
  1. Share your response to the "what impressed you the most" question.
  2. Discuss your observations of their classroom practice, as well as any suggestions for your colleague to continue supporting students' self-regulated learning in the classroom.

INDEPENDENT WORK

- ❑ Document your observation triad discussion in the "study" and "act" categories of your PDSA document.

From *The Martian* – Andy Weir

"They say no plan survives first contact with implementation."

Mark Watney

REFLECTION ON PDSA CYCLES

- How did the PDSA cycle process prompt you to reflect in greater depth on your teaching practice? On self-regulated learning?
- What were the most meaningful aspects of the observation process - being observed and/or observing your colleagues?

"HOMEWORK" FOR NEXT SESSION

- Please read the article, "Student Agency – Preparing for a Lifetime of Learning," for our last session on Friday, December 16.

REFLECTION QUESTION – SURVEYMONKEY LINK

Please check your email for the SurveyMonkey link. At the end of each PD session, there will be a reflection question. Please respond honestly and thoughtfully.

SESSION 11: BIG PICTURE/FUTURE PLAN

Professional Development Slides

December 16, 2016

TODAY'S AGENDA

- Attendance
- Large Group Discussion on Article
- Free-Write
- Independent Work
- Reflection Question

DISCUSSION ON ARTICLE

- How can we, as teachers, support student agency in our curriculum?
- How do we support our students as self-regulated learners in this process?
- What barriers may we need to overcome to effectively promote student agency and support self-regulated learning?

"FREE-WRITE"

For two minutes, in a stream of consciousness style of writing, respond to the following prompt:

- What were the most important moments of the work we did together?

INDEPENDENT WORK

- ❑ Think about your upcoming units for next semester.
- ❑ What strategies or curriculum opportunities can you implement to support your students as self-regulated learners?
- ❑ Jot these ideas down for future reference.

REFLECTION QUESTION – SURVEYMONKEY LINK

Please check your email for the SurveyMonkey link. At the end of each PD session, there will be a reflection question. Please respond honestly and thoughtfully.

Appendix E

PDSA Template

Test Title:			**Date**:		
Tester:		**Cycle#**:		**Driver:**	
What change idea is being tested?					
What is the goal of the test?*					

*Identify your overall goal: To make something work better? Learn how a new innovation works? Learn how to test in a new context? Learn how to spread or implement?

1) PLAN				**3) STUDY**
Questions: Questions you have about what will happen. What do you want to learn?	**Predictions:** Make a prediction for each question. Not optional.	**Data:** Data you'll collect to test predictions		**What were the results?** Comment on your predictions in the rows below.
			→	
			→	
			→	
Details: Describe the who/what/when/where of the test. Include your data collection plan.				**What did you learn?**

2) DO (Briefly describe what happened during the test, surprises, difficulty getting data, obstacles, successes, etc.)**	**4) ACT** (Describe modifications and/or decisions for the next cycle; what will you do next?)

**If the test did not go as planned, don't fret! Write down any observations/reflections to share in the roundtable discussion. These tests help us identify any gaps in our predictions and reality to guide our next PDSA cycle.

Appendix F

Professional Development – Reflection Questions*

Session 1: In what ways did you monitor or control your own learning in today's activity? In what ways did you use attention focusing, self-instruction, and/or specific task strategies?

Session 2: How would you describe SRL to your students?

Session 3: How would you encourage students to plan for a learning task that develops their SRL skills?

Session 4: How would you encourage or implement monitoring of the learning process, metacognition, in the classroom?

Session 5: What are some activities you might design to encourage student reflection and evaluation after a learning task?

Session 6: What are some methods you might employ to monitor your learning process, metacognition, while engaged in a learning task? Please respond to this prompt both generally (your learning and teaching practice) and specifically (related to creating the SRL observation checklist).

Session 7: How might you use goal setting in your own learning? Please respond to this prompt both generally (your learning and teaching practice) and specifically (related to this PDSA cycle).

Session 8: How might you determine your satisfaction with a learning outcome after you complete a learning task? Please respond to this prompt both generally (your learning and teaching practice) and specifically (related to this PDSA cycle).

Session 9: What are some techniques you might use to track your progress through a learning task? Please respond to this prompt both generally (your learning and teaching practice) and specifically (related to this PDSA cycle).

Session 10: How might you evaluate your learning after completing a learning task? Please respond to this prompt both generally (your learning and teaching practice) and specifically (related to this PDSA cycle).

Session 11: In reflecting on student agency and SRL, what techniques might you employ in the classroom to encourage self-control of learning for your students?

*Adapted from Spruce and Bol's (2015) Interview Prompts

Appendix G

Interview Questions

Intervention Group

1. What did you think of having in-house professional development this year?
2. What activities or sessions did you find most helpful/effective?
3. What activities or sessions did you find least helpful/effective?
4. How did the professional development change your classroom practice?
5. How do you incorporate SRL strategies into your classroom practice?

Control Group

1. Did you receive any professional development materials from teachers in the intervention group? If so, what?
2. Did you engage in any conversations with colleagues about the professional development sessions/activities? If so, about what?
3. What is your definition of SRL?
4. How do you incorporate SRL strategies into your classroom practice?

Appendix H

Samples of Observation Score Coding

Teacher: Adrian

Baseline Observation

Teacher Observable Behaviors					
Planning reference to/directed activity for:	0 Not observed	1 Limited application R	2 Somewhat limited application R (more than one time)	3 Somewhat strong application DA	4 Strong application DA (more than one opportunity)
1. setting task goals			Literature circle to discuss conflict/ questions on story		
2. seeking information and strategies needed					Questioning for prior knowledge on literary terms/ "Let's review conflict"
3. setting time and resource allotment		"Utilize role sheets"			
4. self-instruction			"Hopefully, as you were reading…"		
5. attention focusing		Time allotment for literature circle			
6. self-recording (e.g. maintenance of a record of progress)		Edmodo – role sheet			
Monitoring reference to/directed activity for:					

7. clarifying understanding of task/content		Helping students with how to think about questions			
8. evaluation of progress towards goals					"Think about… key terms" in reviewing answers to questions
9. self-instruction				"Did you think about the theme?"	
10. attention focusing		"3 minutes"			
11. self-recording				Answers to literature circle questions	
12. use of specific task strategies				"If you are having trouble, try…"	
13. assessment of task – understanding			"Did you notice? Is that what you were saying"		
Evaluating reference to/directed activity for:					
14. progress towards task goals					Edmodo - Students required to reflect on literature circle performance based on rubric
15. strategy use – those that succeeded and failed	X				
16. actions to be repeated or modified for subsequent related tasks				In completing reflection, "think about what you	

(adaption based on performance)				could do better next time”	
17. determining self-satisfaction (based on performance)	X				
18. causal attribution	X				

Teacher: Adrian

Posttest Observation

Teacher Observable Behaviors					
Planning reference to/directed activity for:	0 Not observed	1 Limited application R	2 Somewhat limited application R (more than one time)	3 Somewhat strong application DA	4 Strong application DA (more than one opportunity)
1. setting task goals			Verbal and on sheet		
2. seeking information and strategies needed					Teacher reviewing key literary terms (e.g., tone, theme); Students using their pre-writing materials to guide them
3. setting time and resource allotment					Students select their own poems and body paragraph ideas; Students use own writing process resources to guide them
4. self-instruction			Graphic organizer/essay template – lists exemplar sentences and suggestions on how to begin		
5. attention focusing	X				
6. self-recording (e.g. maintenance of a record of progress)			Writing process – understanding steps/current point in progress		
Monitoring reference to/directed activity for:					

7. clarifying understanding of task/content					Teacher questioning – "What do you need help with?"; "How does the poem make the reader feel?"; "What words create a soothing tone?"
8. evaluation of progress towards goals					Teacher floating around room – checking and providing feedback on students' thesis statements and body paragraph ideas
9. self-instruction					Students working independently; "Answer those writing questions with your evidence"… to form body paragraph; "Look at exemplar sentences to guide you"
10. attention focusing			Off task groups – "Are you girls okay?"/ "Do you need any help getting started?"		
11. self-recording					Students completing essay template/working on drafting their essay
12. use of specific task strategies					"Look at the list of tone words"; Use thesaurus; "Write ideas on paper and then you can revise"

13. assessment of task – understanding			Teacher clarification of literary terms		
Evaluating reference to/directed activity for:					
14. progress towards task goals			Verbal instructions for next steps in writing process		
15. strategy use – those that succeeded and failed	X				
16. actions to be repeated or modified for subsequent related tasks (adaption based on performance)				Student discussion – "How do we maintain an objective tone in our essays?"; "How do you rephrase sentences instead of using personal pronouns?"	
17. determining self-satisfaction (based on performance)	X				
18. causal attribution		General student praise, but no connection to specific skills/ techniques			

Teacher: Sarah

Baseline Observation

Teacher Observable Behaviors					
Planning reference to/directed activity for:	0 Not observed	1 Limited application R	2 Somewhat limited application R (more than one time)	3 Somewhat strong application DA	4 Strong application DA (more than one opportunity)
1. setting task goals		Verbal – "today we are going to talk about ser (Spanish verb for "to be")"			
2. seeking information and strategies needed				Review of pronouns on board	
3. setting time and resource allotment			"Go to page 24 and snip"; "You may want to snip and put in your notes"		
4. self-instruction		"Identify subject and decide verb to go with subject"			
5. attention focusing					Prayer in Spanish and review of weekend in Spanish
6. self-recording (e.g. maintenance of a record of progress)	X				
Monitoring reference to/directed activity for:					
7. clarifying understanding of task/content					Student questioning (e.g., "How do we

					introduce our best friend [in Spanish]"?
8. evaluation of progress towards goals		"Be careful on #5 and #7 – identify the whole subject"			
9. self-instruction			Teacher pointing to information on board about pronouns and writing outline		
10. attention focusing	X				
11. self-recording					Stamps on individual sheet, which determines quarter's participation scores
12. use of specific task strategies		"No apostrophes in Spanish… you can say…"			
13. assessment of task – understanding				Student discussion – "How did you know that is the answer?"	
Evaluating reference to/directed activity for:					
14. progress towards task goals		"We will finish tomorrow in class"			
15. strategy use – those that succeeded and failed	X				
16. actions to be repeated or	X				

modified for subsequent related tasks (adaption based on performance)					
17. determining self-satisfaction (based on performance)	X				
18. causal attribution		General praise, but no reason why/specifics			

Teacher: Sarah

Posttest Observation

Teacher Observable Behaviors					
Planning reference to/directed activity for:	0 Not observed	1 Limited application R	2 Somewhat limited application R (more than one time)	3 Somewhat strong application DA	4 Strong application DA (more than one opportunity)
1. setting task goals	X				
2. seeking information and strategies needed	X				
3. setting time and resource allotment		"Pick up file from Nachos – work with group"			
4. self-instruction	X				
5. attention focusing				Prayer in Spanish (teacher-led)	
6. self-recording (e.g. maintenance of a record of progress)	X				
Monitoring reference to/directed activity for:					
7. clarifying understanding of task/content					Students working together to review for quiz; teacher floating around room – clarifying content
8. evaluation of progress towards goals					Teacher-leading questions about vocabulary and how it is

					used in a sentence
9. self-instruction			Teacher pointing to information on board about indefinite articles; "If you don't know a word, translate it"		
10. attention focusing	X				
11. self-recording					Stamps on individual sheet, which determines quarter's participation scores
12. use of specific task strategies		"You should use your indefinite articles"			
13. assessment of task – understanding					Students reading aloud sentences – teacher then asks follow-up questions for understanding
Evaluating reference to/directed activity for:					
14. progress towards task goals					Student discussion – review of requirements in writing assignment and students highlight key vocabulary in writing assignment
15. strategy use – those that	X				

succeeded and failed					
16. actions to be repeated or modified for subsequent related tasks (adaption based on performance)					"Just fix it" – students are able to fix any mistakes in paper (before turning it in); "I really wanted you to use those new vocabulary words [in writing assignment]"
17. determining self-satisfaction (based on performance)	X				
18. causal attribution			"I like that she used an indefinite article [in writing assignment]"; "If you are able to do it without looking up, great for you! You will do great on the quiz tomorrow"		

Appendix I

A priori Codes*

Forethought/Planning

- Goal setting (student)
- Goal setting (teacher)
- Self-efficacy
- Strategic planning

Performance/Monitoring

- Checklist (as a self-recording and self-instruction technique)
- Metacognitive questioning (student)
- Metacognitive questioning (teacher)
- Task strategies
- Tool/resource management

Self-Reflection/Evaluating

- Peer-evaluation
- Pride in learning
- Self-evaluation
- Self-reflection
- Teacher feedback

*Based on Zimmerman's (2002) model of SRL

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EDUCATION

2017 **Doctorate of Education**
Johns Hopkins University, Baltimore, Maryland
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Dissertation Title: *The Teacher's Role in Fostering Self-Regulated Learners: A Professional Development Model*

2012 **Master of Education in Secondary Education**
Xavier University, Cincinnati, Ohio

2009 **Bachelor of Arts in English**
John Carroll University, Cleveland, Ohio

PROFESSIONAL EXPERIENCE

Johns Hopkins University
2015 – 2017 Teaching Assistant for Online Ed.D. Program

School Name Redacted
2017 – Present Educational Technology Coordinator
2014 – Present English Department Chair
2013 – 2015 Senior Project Coordinator
2012 – Present English Teacher, Grades 9 – 12

Wyoming High School
2012 Student Teacher, Grades 9 and 12

Cincinnati Children's Hospital
2011 – 2016 Clinical Research Coordinator III (PRN from 2012-2016)
2009 – 2011 Clinical Research Coordinator II

SCHOLARSHIP

Peer-Reviewed Articles

Adams, D.M., Trenor, C.C., Hammill, A.M., Vinks, A.A., Patel, M.N., Chaudry, G., Wentzel, M.S., Mobberly-Schuman, P.S., Campbell, L.M., **Brookbank C.,** et al. (2016). Efficacy and safety of sirolimus in the treatment of complicated vascular anomalies. *Pediatrics, 137*(2), 1-10.

Peer-Reviewed Presentations

Brookbank, C. (2015, November). *Individualized Learning as a Collaborative Experience.* Poster session presented at the National Council of Teachers of English, Minneapolis, MN.

Brookbank, C. and Downey, A. (2015, April). *Senior Project: A Capstone Experience for College and Career Readiness.* Presented at the National Catholic Educational Association Conference and Expo, Orlando, FL.

Invited Presentations/Panel Discussions

Berling, J., **Brookbank, C.,** and Kohler, J. (2016, December). *Google Classroom.* Presented at School Name Redacted.

Brookbank, C. and Lauber, B. (2016, October). *Common Assessments and Curriculum Mapping.* Presented at School Name Redacted.

Brookbank, C. (2016, August). *Professional Development as an Intervention for Promoting Teacher Practice of Self-Regulated Learning Strategies.* Roundtable Presentation at Johns Hopkins University, Baltimore, MD.

Brookbank, C., Kobett, B., Rectanus, A., and Schweizer, N. (2016, August). *Designing Effective Interventions.* Student Panel Participant for Year Two Doctoral Students at Johns Hopkins University, Baltimore, MD.

Brookbank, C., Devall-Martin, L., Gosnell, C., Kobett, B., and Mitchell, S. (2015, August). *Doctoral Expectations and Strategies for Success.* Student Panel Participant for Year One Doctoral Students at Johns Hopkins University, Baltimore, MD.

UNIVERSITY AND K-12 SERVICE

Testing Evaluation Committee, School Name Redacted (2016 – Present)
Elected Member of Ed.D. Student Advisory, Johns Hopkins University (2014 – 2017)
Facilitator for Critical Reading PLC, School Name Redacted (2014 – 2015)
Freshman Focus Instructor and Advisor, School Name Redacted (2014)
Junior and Senior Horizontal PLC, School Name Redacted (2013 – 2014)
Facilitator for Student Experience PLCy, School Name Redacted (2013 – 2014)
Host for Preservice Education Students, School Name Redacted (2013 – Present)
Alumnae Board Member, Saint Ursula Academy (2010 – 2014)

HONORS AND AWARDS

School of Education Merit Scholarship, Johns Hopkins University (2014 – 2017)
Most Influential Teacher, Anthony Munoz Foundation (2015)
Senior Class Speaker, School Name Redacted (2015)
Shining Star – Academics Award, School Name Redacted (2014 – 2015)
Leadership & Ethics Seminar – Appointed Faculty Representative, West Point Society (2014)
Alpaugh Scholars Leadership Program for Educators, University of Cincinnati (2013 – 2014)

PROFESSIONAL LICENSURE AND AFFILIATIONS

Ohio Teacher License in Adolescence to Young Adult (Grades 7-12) Integrated Language Arts (2012 – Present)
International Society for Technology in Education – Member
National Council of Teachers of English – Member